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TRANSACTIONS

OF THE

WISCONSIN

STATE HORTICULTURAL SOCIETY.

PROCEEDINGS, ESSAYS AND REPORTS

AT THE

ANNUAL WINTER MEETING

Held at Madison, February 4, 5, 6 and 7, 1873.

PREPARED BY O. S. WILLEY, SECRETARY.

MADISON, WIS.:
ATWOOD & CULVER, PRINTERS AND STEREOTYPERS.
1873.

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LIST OF OFFICERS.

1873.

PRESIDENT:

J. S. STICKNEY - - - WAUWATOSA.

VICE-PRESIDENT:

A. G. TUTTLE - - - - BARABOO.

RECORDING SECRETARY:

G. E. MORROW - - - MADISON.

CORRESPONDING SECRETARY;

G. J. KELLOGG - - - - JANESVILLE.

TREASURER:

G. A. MASON - - - - MADISON.

STANDING COMMITTEES.

EXECUTIVE:

J. M. SMITH - - - - GREEN BAY.
HON. M. ANDERSON - - - CROSS PLAINS.
H. M. THOMPSON - - - ST. FRANCIS.

OBSERVATION:

J. M. SMITH - - - - GREEN BAY.
G. J. KELLOGG - - - - JANESVILLE.
I. J. HOILE - - - - OSHKOSH.
C. WATERS - - - - VIROQUA.
C. H. GREENMAN - - - MILTON.

NOMENCLATURE:

J. C. PLUMB - - - - MILTON.
A. G. TUTTLE - - - - BARABOO.
W. FINLAYSON - - - - MAZOMANIE.

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PREFACE.

THE THIRD ANNUAL VOLUME of the *Wisconsin State Horticultural Society* is herewith submitted to the public, and with its publication the official position and connection of the writer with the society ceases. Excepting two years, the writer has held the office of Recording Secretary for thirteen consecutive years. The rise and progress of horticulture in the state in that time has been very marked. The society has grown from almost nothing, like the embryo seed, to a position of acknowledged power and recognized usefulness.

Of the value of the present volume, I can safely say it is superior to any of those previously issued. The papers read at the last meeting were of the most practical nature, and the discussions were by those fruit growers, who have given the subject much thought and watchfulness.

The lists of fruit adopted for cultivation are very complete, and with slight variations, for soil or special locations, will be found excellent guides to the planter.

The last (1872 and '73) severe winter, has severely tried many varieties of fruit, and probably some will be found killed or in an injured condition, and may be the means of discouraging some, and revive the cry of "no fruit country," but planters must remember that we of Wisconsin are in no worse condition than our friends in Illinois and Michigan, they having suffered equally with us by the severity of cold. Let us not by this be discouraged, but persistently plan more experiments, with seedlings, developing in the future as in the past, new and improved sorts, and Wisconsin may rank among the best and most reliable fruit growing states in the Union. Thus will the future of the society be even brighter than the past.

O. S. WILLEY.

MADISON, WIS., 1873.

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LIST OF MEMBERS.

1873.

Anderson, Hon. M. Cross Plains.
Adams, Hon. B. P. Door Creek.

Barney, J. B..... Mazomanie.
Bennett, P..... Appleton.

Curtis, F. C..... Rocky Run.
Case, F. W..... Madison.
Campbell, Jas..... Door Creek.
Clayton, W..... Mineral Point.

Daniells, Prof. W W St. University.
Daniels, E. W..... Auroraville.
Davis, S. M .....
Davis, D. C..... Madison.
Day, F. E..... Whitewater.
Doyle, L. H..... Doylesville.

Emmons, J. W.... Magnolia.
Emerson, M. E.... Door Creek.

Felch, B. F..... Stevens Point.
Fisher, W..... Waunakee.

Graves, S. W..... Rutland.
Greenman, C. H... Milton.
Gibbs, C..... Montreal, Can.

Hale, W. A..... Sherbrook, Can.
Hoile, I. J..... Oshkosh.
Howie, John..... Waunakee.
Hallis, Matthew... Middleton.
Hunt, S..... Evansville.
Holt, M. A..... Madison.
Hambright, C. M.. Beaver Dam.
Hart, D..... Appleton.
Hirschinger, Chas. Baraboo.

Hindman, Reed... Richl'd Center

Kellogg, G. J..... Janesville.
Kitzrow, W..... Milwaukee.

Lawrence, F. S... Janesville.

Mathews, Geo..... Burlington.
Morrow, Geo. E... Madison.
Mason, Geo. A..... Madison.
McCurdy, Hon. R. Oshkosh.

Olds, B. B..... Clinton Junct'n.

Perkins, J..... Prairie du Sac.
Parks, J. W..... Dodge's Corn's.
Putnam, Hon. G. W. Ash Ridge.
Plumb, J. C..... Milton.
Plumb, T. D..... Madison.

Robbins, Geo..... Mazomanie.
Reid, W..... North Prairie.
Roe, J. P..... Oshkosh.

Stickney, J. S..... Wauwatosa.
Schuyler, —..... Chicago, Ill.
Seltzer, L..... Monroe.
Seymour, A. N.... Mazomanie.
Smith, J. M..... Green Bay.
Sheldon, S. R..... Racine.

Thompson, H. M.. St. Francis.
Tuttle, A. G..... Baraboo.
Tuttle, A. C..... Baraboo.

Waters, Chas. .... Viroqua.
Wilcox, E..... Trempealeau.
Wildhagen, H..... Madison.

LIFE MEMBERS.

Hobbins, Joseph, M. D., F. G. S., and Corresponding Member Royal Horticultural Society, England.. Madison.
Willey, O. S..... Madison.

HONORARY MEMBERS.

Woodard, L..... Marengo, Ill.
Huntley, Mrs. D..... Appleton.

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NURSERYMEN, FLORISTS AND GARDENERS

OF WISCONSIN.

Atwood, Isaac, gener'l nursery, Lake Mills.
Bæcher, John, florist, Milwaukee.
Baumgarten, florist, Milwaukee.
Brainard, J., grapes, Oshkosh.
Backhaus, G., veg'ble garden, Milwaukee.
Barney, J. B., apple trees, Mazomanie.
Brotherhood, Wm., veg. gar., Milwaukee.
Baker, J. A. & Co., apple trees, Durand.
Bell, R. G., general nursery, Black Earth.
Benton, E. H., Leroy.
Bennett & Briggs, Appleton.
Bush, Isador & Son, gen'l nur'y, Bushberry.
Butler & Holmes, general nursery, Sparta.
Barber, J., Miner plums, Lancaster.
Conger & Son, gen'l nursery, Whitewater.
Clark, A. & T., general nursery, Monroe.
Clark, M. L., apple trees, New Lisbon.
Chase, Edmund, apple trees, Oshkosh.
Colwell, bedding plants, Janesville.
Carter, G. W., general nursery, Waterloo.
Draper, H. A., fruits, veg. gar., Madison.
Dunlap, J. W. & Son, florist, Milwaukee.
Dewolf, M., raspberries, Delavan.
Daniels, E. W., apple trees, Auroraville.
Daniels, Milwaukee.
Doyle, L. H., apple trees, Doylesville.
Edward, Samuel, Jr., forest evergreens, Green Bay.
Ellwood & Bro., gen'l nursery, Dodgeville.
Eimer, Ada, vegetable garden, Milwaukee.
Feldkamp, B., veg'ble garden, Milwaukee.
Freytag, Jacob, florist, Milwaukee.
Fields, R. C., apple trees, Osceo.
Floyd, H., apple trees, Berlin.
Flint, W. S., apple trees, Princeton.
Flinn, H., apple trees, Watertown.
Freeborn & Hatch, apple trees, Ithaca.
Finlayson, W., gen'l nur'y, Mazomanie.
Farr, A. W., forest evergr'ns, New London.
Felch, B. F., apple trees, Stevens Point.
Greenman, McGraw & Day, general nursery, Whitewater.
Gould Nursery, gen'l nur'y, Beaver Dam.
Greenman, C. H., grapes, Milton.
Gagan, P. & Co., apple trees and evergreens, Janesville.
Gewicke, Mrs., florist, Madison.
Gray, John W., crab trees, Trempealean.
Gebhardt, Heinrich, florist and vegetable gardener, Milwaukee.
Herschinger, C. H., apple trees, Baraboo.
Hoppenrath, C., florist and vegetable gardener, Milwaukee.
Hortung, Michael, florist, Milwaukee.
Hæssler. Herman, florist, Milwaukee.
Hislop, dealer, green house, Milwaukee.
Hamilton, C. & Son, gen'l nursery, Ripon.
Hargar, Balantine Bro., general nursery, Bloomington.
Hoile, I. J., dealer, Oshkosh.
Hunt, S., apple trees, Evansville.
Howie, J. & W., apple trees, Waunakee.
Hake, D. A., apple trees, Jefferson.
Holt, M. A., general nursery, Madison.
Jewett, A. H., forest evergreens, Sparta.
Jones, A. P., Fond du Lac.
Kæstner, C., veg'ble gardener, Milwaukee.
Kizzrow, W., florist, Milwaukee.
Kellogg, G. J., gen'l nursery, Janesville.
Loudon, F. W., gen'l nursery, Janesville.
Lefeber, A., veg'ble gardener, Milwaukee.
Mars, C. & Son, veg. gard'er, Milwaukee.
Mornbury, Frederick, florist, Milwaukee.
Middlemus, A., florist, Milwaukee.
Miles, Isaac, florist, Oshkosh.
Neferman, John, veg. garde'r, Milwaukee.
Osborn, J. H., green house, Oshkosh.
Œrtel, Louis, veg'e gardener, Milwaukee.
Pollard, Joseph, florist, Milwaukee.
Petty, J., gardener, La Crosse.
Plumb, J. C., general nursery, Milton.
Pinney & Co., evergreens, Sturgeon Bay.
Palmer, R., Fond du Lac.
Peffer, G. P., general nursery, Pewaukee.
Putnam & Hutten, apple trees, Ash Ridge.
Palmer, W. W., apple trees, Brodhead.
Perkins, Josiah, apple trees, Prairie du Sac
Reed, W., apple trees, North Prairie.
Roe, J. P., vegetab's and grapes, Oshkosh.
Roberts, H. G., florist, Janesville.
Richardson, Mrs. J. B., general nursery, Sheboygan Falls.
Stickney & Baumbach, general nursery, Wauwatosa.
Smith, Gustad, veg. garden, Milwaukee.
Sasse, Ferdinand, florist, Milwaukee.
Scherz, Gee., florist, Milwaukee.
Schmoldt, Herman, florist, Milwaukee.
Scherrmacher, C. W., florist, Milwaukee.
Sabin, R. B. & Co., gen'l nur'y, Sparta.
Sparks, H. S., Trempealeau.
Smith, G. N., cranberry plants and seeds, Berlin.
Smith, G. E., grapes and vegetab's, Berlin.
Swain, S. G., apple trees, Baraboo.
Strever, W., green house, Oshkosh.
Seymour, A. N., apple trees, Mazomanie.
Thompson, H. M., gen. nur., St. Francis.
Twist, L. & Son., apple trees, Loganville.
Tuttle, A. G., general nursery, Baraboo.
Telfer, A., Elroy.
Thomann, Casper, florist, Milwauke.
Thiedmann, Wm., veg. gard., Milwaukee.
Tinker, John, apple trees, Clinton.
Treat, R. C., cranberries, Princeton.
Tubbs, J. L., Elkhorn.
Uecke, Jno., forest evergreens, Green Bay.
Vecke, J., Green Bay.
Warner, apple trees, Baraboo.
Wetting, John, veg. gardener, Milwaukee.
Wilms, Jno. C., veg. gard'r, Milwaukee.
Whitnall & Ellis, florists, Milwaukee.
Wiesner, Frederick, florist, Milwaukee.
Willam, J. C., florist, Milwaukee.
Williams, J., florist, Milwaukee.
White, Albert, apple trees, Mauston.
Wilcox, E. & Son, apple trees, Tremp'leau.
Waite, M. C., dealer, Baraboo.
Waters, Charles, apple trees, Springville.
Williams, J. E., florist, Madison.
Willey, O. S., general nursery, Madison.
Wilcox, J. & Son, Omro.

[Believing that a complete list of the nurserymen and florists in the state would be a valuable acquisition of knowledge to the general reader, I have compiled a list, as I could, of all known to me who belong to the fraternity, with the full belief that it is far from complete, yet forming a starting point to add to and correct in the future. Many names are added in this volume that did not appear in the last.—EDITOR.]

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CONSTITUTION AND BY-LAWS,

Adopted at the Annual Meeting in February, 1868.

CONSTITUTION.

ARTICLE I.—This Society shall be known as the Wisconsin State Horticultural Society.

ARTICLE II.—Its object shall be the advancement of the science of Pomology and the art of Horticulture.

ARTICLE III.—Its members shall consist of *Annual* members paying an annual fee of one dollar; of *Life* members paying a fee of ten dollars at one time, and of *Honorary* members, who shall only be members of distinguished merit in horticultural or kindred sciences, or who shall confer any particular benefit upon the society, who may by vote be invited to participate in the proceedings of the Society,

ARTICLE IV.—Its officers shall consist of a President, Vice-President, Recording Secretary, Corresponding Secretary, Treasurer and an Executive Board, consisting of the foregoing officers and the ex-President, and *three* members to be elected annually; five of whom shall constitute a quorum at any of its meetings.

In addition to the foregoing officers, the President and Secretaries of all local Societies shall be deemed *ex-officio* members of the Executive Board.

All officers shall be elected by *ballot*, and shall hold their office for *one* year thereafter, and until their successors are elected.

ARTICLE V.—The Society shall hold annual meetings, commencing on the first *Tuesday* of February, for the election of officers, for discussions, and for the exhibition of *fruits;* also, one meeting during the fall, for the exhibition of fruits, and for discussions, at such time and place as the Executive Board shall designate.

ARTICLE VI.—This Constitution may be amended at any regular meeting by a two-thirds vote of the members present.

B.

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BY-LAWS.

I. The President shall preside at meetings, and with the advice of the Secretary, call all meetings of the society, and have a general superintendence of the affairs of the society, and shall deliver an Annual Address, upon some subject connected with horticulture.

II. The Vice President shall act in the absence or disability of the President, and perform the duties of the chief officer.

III. The secretaries of local societies shall by correspondence and personal intercourse with the horticulturists of their respective districts obtain accurate information of the condition and progress of horticulture, and report to this society.

IV. The Corresponding Secretary shall attend to all the correspondence of the Society.

V. The Recording Secretary shall record the proceedings of the society, preserve all papers belonging to the same, and superintend the publication of its reports.

VI. The Treasurer shall receive and keep an account of all moneys belonging to the society, and disburse the same on the written order of the President, countersigned by the Secretary, and shall make an annual report of receipts and disbursements.

VII. The Executive Board may, subject to the approval of the Society, manage all its affairs, and fill vacancies in the board of officers; three of their number, as designated by the President shall constitute a finance committee.

VIII. It shall be the duty of the finance committee to settle with the Treasurer, and to examine and report upon all bills or claims against the Society, which may have been presented and referred to them.

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LAWS OF WISCONSIN.

AN ACT to provide for the incorporation of the Wisconsin State Horticultural Society, and the printing and publishing of its transactions.

SECTION 1. The Wisconsin State Horticultural Society is hereby declared a body politic and corporate, and by that name it shall be known in all courts and places whatsoever.

SECTION 2. The objects of the Society being to improve the condition of horticulture, rural adornment and landscape gardening, it shall be allowed for these purposes to take, hold and convey real and personal estate, the former not exceeding the value of five thousand dollars.

SECTION 3. The corporation shall possess all the powers and privileges conferred, and be subject to all the liabilities imposed upon corporations, by chapter seventy-eight of the revised statutes, so far as the same may be applicable.

SECTION 4. The State Printer is hereby directed to print on good book paper, fold, stitch and bind in muslin, (uniform in style with the last volume published, of the transactions of the State Agricultural Society), two thousand copies of the transactions of the State Horticultural Society, embracing the years 1870 and 1871: *provided*, the number of printed pages of said volume shall not exceed two hundred, and to deliver the same to the Superintendent of Public Property, to be by him distributed as follows, to wit: Three copies to each member of the Legislature, fifty copies to each county or town horticultural society, who shall report its organization with officers elect, and number of members, with an abstract of its proceedings, for publication in said volume to the Secretary of the State Horticultural Society, and fifteen copies to each county agricultural society, twenty-five copies to the State Agricultural Society, twenty-five copies to the State Historical Society, fifty copies to the State University, and all remaining copies to the State Horticultural Society.

SECTION 5. Hereafter, or until the Legislature shall otherwise order, the transactions of the Wisconsin State Horticultural Society, together with abstracts of the reports of other horticultural associations of the State, so far as the same may be furnished, shall be annually printed, published and distributed in like manner and number as provided in section four of this act, on the order of the Governor.

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SECTION 6. So much of chapter 74, general laws of 1868, sections 2 and 3, as provides for the publication of the transactions of the State Horticultural Society in connection with the State Agricultural Society, and any additional copies of the same, is hereby repealed.

SECTION 7. This act shall be in force from and after its passage.

Approved March 24, 1871.

AN ACT to amend section 4 of chapter 149 of the General Laws of 1871, entitled "An Act to provide for the incorporation of the Wisconsin State Horticultural Society, and the printing and publication of its transactions."

SECTION 1. Section 4 of said chapter 149 is hereby amended so as to read as follows: Section 4. The state printer is hereby directed to print on good book paper, fold, stitch and bind in muslin (uniform in style with the last volume published, of the transactions of the State Agricultural Society), two thousand copies of the transactions of the State Horticultural Society, embracing the years 1870 and 1871, which volume may include such necessary engravings of new fruits, system of pruning, and insects injurious to fruit culture as shall be necessary to properly illustrate the printed matter, the cost of said engravings not to exceed the sum of one hundred and fifty dollars in any one year: *provided*, the number of printed pages of said volume shall not exceed two hundred, and to deliver the same to the superintendent of public property, to be distributed by him as follows, to wit: three copies to each member of the legislature; fifty copies to each county or town horticultural society, who shall report its organization with officers elect, and number of members, with an abstract of its proceedings for publication in said volume to the secretary of the State Horticultural Society; fifteen copies to each county agricultural society; twenty-five copies to the State Agricultural Society; twenty-five copies to the State Historical Society; fifty copies to the State University, and all the remaining copies to the State Horticultural Society.

SECTION 2. This act shall take effect and be in force from and after its passage.

Approved March 25, 1872.

AN ACT to amend chapter 172 of the General Laws of 1872, entitled "an act to amend section 4 of chapter 149 of the General Laws of 1871, entitled 'an act to provide for the incorporation of the Wisconsin State Horticultural Society, and the printing and publishing of its transactions.'"

SECTION. 1. Chapter 172 of the general laws of 1872, is hereby amended by adding thereto the following, after section 1: Section 2. There is hereby appropriated out of the general printing fund, the sum of one hundred and fifty dollars, to carry out the provisions of section 1 of this chapter.

SECTION 2. This act shall take effect and be in force from and after its passage.

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TRANSACTIONS

OF THE

WISCONSIN

STATE HORTICULTURAL SOCIETY.

ANNUAL MEETING, HELD AT MADISON,

February 4, 5, 6 and 7, 1873.

The members and friends of the WISCONSIN STATE HORTICULTURAL SOCIETY met in the rooms of the State Agricultural Society, in the capitol, Tuesday evening, February 4.

There is an unusual interest shown in the cause of horticulture by those present, the attendance being larger than usual and composed of members of the legislature and prominent horticulturists from different parts of the state.

The following is the circular convening the meeting, also the programme for the reading of papers, discussions and the business of the Society:

CALL.

The annual winter meeting of this Society will be held at Madison, commencing Tuesday evening, and continuing through Wednesday and Thursday, February 4th, 5th, and 6th, 1873. It is expected that the importance and interest of this meeting will not be less than in previous years.

Lectures and essays have been provided for by eminent horticulturists, upon subjects of interest to every fruit grower in the State. These lectures and papers will be followed by discussions upon the topics of which they treat, and it is desirable that there be a full attendance from all parts of the State, and that there be a free exchange of ideas upon this great theme of study.

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Madison is accessible by railroads from all directions, and the usual reduction in railroad fare will be made to those in attendance.

The study of horticulture has advanced with great rapidity during the last ten years. We need additional light, and that *your* light may shine to the uttermost parts of the northwest, we urge upon every one who is interested in the cause to be at this meeting.

New or choice fruits and seedlings of special merit are solicited for exhibition and examination.

PROGRAMME.

TUESDAY EVENING.

President's Address—J. S. STICKNEY, Wauwatosa.
Several Scattering Suggestions—G. E. MORROW.
Congratulations—A General Talk, in which everybody is expected to participate.

WEDNESDAY FORENOON.

Secretary's Report—O. S. WILLEY, Madison.
Reading of Correspondence and Appointment of Committees.
Report of Local Horticultural Societies.
Horticulture: What is it?—F. S. LAWRENCE, Janesville.
Fruit Culture in Northern Wisconsin—B. F. FELCH, Stevens Point.

WEDNESDAY AFTERNOON.

How many and what varieties shall we plant?—G. J. KELLOGG, Janesville.
Revision of Fruit List—Propagation and Culture of the Cherry—H. M. THOMPSON, St. Francis.
Grapes—Life Experience—A. G. TUTTLE, Baraboo.
How to Make Fruit Growing a Success—EDWIN NYE, Freedom.

WEDNESDAY EVENING.

A joint meeting of the Agricultural and Horticultural Societies will be held in the Assembly Chamber. Prof. W. W. DANIELLS, M. S., of the State University, will deliver the annual address for the State Agricultural Society, and Rev. SAMUEL FALLOWS, State Superintendent of Public Instruction, for the Horticultural Society; also a poem, Poetry and Prose of Horticulture, by H. W. ROBY, Milwaukee.

THURSDAY MORNING.

Treasurer's Report.
Reports of Committees.
Election of Officers.
Adaptation—J. C. PLUMB, Milton.
Insects Injurious to Horticulture—H. M. THOMPSON, St. Francis.
Conservatory Gardening—JAMES POLLARD, Milwaukee.
Rural Homes—Mrs. D. HUNTLEY, Appleton.

THURSDAY AFTERNOON.

Hybridizing—Production of new varieties from seed, &c.—G. P. PEFFER, Pewaukee.
Market Gardening—J. M. SMITH, Green Bay.
Forest Tree Culture as a National Interest—GEO. PINNEY, Sturgeon Bay.

O. S. WILLEY,
Recording Secretary.

MADISON, Wis., Jan., 1873.

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President J. S. Stickney, of Wauwatosa, presiding, called the meeting to order at 7½ o'clock, P. M., and then read his

ANNUAL ADDRESS.

Gentlemen of the State Horticultural Society:—In again meeting and greeting each other at this, our annual conference, I trust we all come bearing full and complete notes of the year's experiences and observations, which shall make this meeting equal to any former one as the record of a year's real progress in this, our chosen calling.

Our observations being made from such different stand-points and under such varied circumstances, will differ very widely; and conclusions arrived at may, sometimes, be almost contradictory. It is this which gives zest and point, and real value to our discussions. The past, though not an abundant fruit season, has perhaps given us its full share of hints and suggestions of improvements to be made and obstacles to be overcome. The codling moth has very plainly said to us, "in seasons of abundance, there may be apples both for you and us, but in seasons of scarcity, we shall need them all." Shall we fold our hands and allow this declaration to be fulfilled, or have we sufficient ingenuity and perseverance to beat these little worms?

Blight in various forms has given us here and there a touch; not to do serious harm, but just to show us what it could do when circumstances favored. This is the great barrier between us and a full supply of pears. Shall we do without the pears, or put forth new and stronger efforts to grow them? I am not willing to give them up, and will here repeat my suggestion of a year ago, that we, as a society, take up with greater force and earnestness the culture of pears, plums and cherries, and not as heretofore, pass them by as things almost or quite beyond our reach. As to their treatment, I have little to recommend with certainty, but for the pears, would suggest that they be planted on the highest good soil at command, and exposed to all the winds that blow. That only standard trees be planted, and those of one or two years' growth, and headed very low. That the soil be deeply worked and thoroughly drained, but not

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highly manured. That a medium, well matured growth, and low, broad heads should be the rule. That protection should be given by mulching and by shading the trunk and larger branches on the south and west, during the heat of summer, and the alternate heat and cold of February and March. That as special fertilizers we experiment carefully with ashes, salt and the refuse of iron forges. Why I make this suggestion is because every long lived and really successful pear tree which I can remember, from my youth up, has been aided by a majority of these favoring circumstances, while thousands under any and almost every other treatment have failed; some after yielding a few crops, but most without bearing a single specimen.

Observation for the past three years has driven me, much against my will, to the conclusion that both pears and apples are much safer from blight when fully exposed to the winds than when sheltered by trees or buildings. Whether we should seek protection for its benefits in winter, or avoid it on account of this danger in summer, is an open question which we may profitably discuss.

The success of a few with grapes, and the splendid exhibitions made at our fairs are doing a good work, by exciting a very genereal desire and determination to have a better supply of choice grapes for home use. The great wine producing fever has mostly subsided, leaving behind but few who mourn; but to encourage and foster this growing of grapes, as healthful and luxurious food, until choice, ripe clusters, in their season, are abundant on every table, is noble work for us to do, and for which we shall never blush. That such a supply may be had with only moderate effort and expense to the grower, none can doubt who have carefully observed the success of all who have judiciously planted.

In this matter of grape culture, as indeed in all horticultural practices that we would make wide-spread and general, we must study simplicity. "The million" cannot be educated up to that thorough preparation of soil or that systematic after-culture set forth in most horticultural books. I should be sorry to advocate anything slack or slip shod, but I think we may very properly say to all planters, while deep soil and thorough

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drainage are necessary to your success, they are generally not expensive, or difficult to obtain. Nature may have prepared them ready for use, or any needed changes may be easily made by team and plow, while only occasionally is it absolutely necessary to use the spade and costly hand-labor. So take courage, and if it is not convenient for you to incur large expense, do not give up, or postpone the planting, but go to work hopefully with the common means at your command.

A carefully kept trellis of grapes is a beautiful sight, but just as healthy vines and just as choice fruit may be supported by a few rough stakes, and the pruning and trimming absolutely needed is very simple and easy.

A bed of strawberrics kept nicely in hills is very attractive, and may pay well for the time and labor bestowed upon it, but the fact that you cannot give this extra care, need not diminish your supply of strawberries. A few rows planted in good common soil and tended entirely with horse and cultivator will yield abundantly.

An apple orchard planted in the best locality you have, though it may not be all that you could wish, will rarely fail to make paying returns. If your ground is too wet, and the draining is beyond your reach, then plow into high ridges and plant on top of these. If your soil is poor, and manure is not at hand, then use muck, or leaf mould from the forest. Apply all fertilizers at or near the surface, instead of spending time and money to bury them deeply.

You will constantly hear of new and very choice varieties, but if the three or five dollars necessary to their possession is not in your pocket, console yourself by planting the best kinds within your reach—such as you have seen living and growing thriftily and bearing constant and heavy crops—and your net income shall not be diminished thereby.

Having given this much of license to the general planter, it is but just that we add a word of caution, in self defense.

It is this: While being encouraged by the foregoing, it is not expected that you will use it as a cloak to greater omissions and carelessness, but that you consider this the least that you must dare to do, and strive to do just as much better as circumstances

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will permit. If, after planting, you leave your trees to the tender mercies of grass and weeds, if you delegate your hogs to do the cultivating and your cattle the pruning, please exonerate us.

While it is desirable that new kinds be fully tested, and while large collections of varieties in the hands of skillful cultivators are very valuable as illustrating the comparative merits of each, yet there will be found in these large collections but few varieties that will help the general planter to put cash in his pocket, or bushels of fruit in his cellar; and herein our fruit exhibitions often mislead the casual observer. Fifty or one hundred varieties by one exhibitor are a pleasing sight, and the owner may well feel proud of them; but to the seeker after knowledge they "tell no tales." They are there like children at a school exhibition, in their good clothes and on their good behavior, with the things they don't know or don't do, carefully withheld.

The fact that three to six varieties yield all the paying income of every orchard is taught, and the lesson repeated by every year's crop, and yet we go steadily on growing and showing the fancy kinds the same honors and attentions as those that pay.

As a people, we are prone to forget, and the memory of our blighted hopes, when unusually severe winters have destroyed our favorite trees, is growing dim. The lessons so sharply taught us heretofore must sometime be repeated on the tender varieties that the recent favorable seasons are leading us to plant. Whether it is to come the present cold winter or later, matters little, except that the sooner it comes the less our loss. But is it not our duty as public educators to strongly discriminate in favor of our most hardy and valuable kinds by offering special premiums for best plates of each, instead of for best collection of five, ten, or twenty kinds into which some that are inferior will always creep?

I have often wondered that with our present supply of good fruits, their use was not more general. Instead of being used irregularly between meals, and at unseasonable hours, why are they not regularly upon our tables as a part of our daily food? The present skill and facilities for drying, canning and cooking render this easy for the whole year. All consider them a luxury, none doubt their healthfulness or economy, and yet how sparingly are they used.

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Small fruits not being in season at the time of our general exhibition, there seems no better way to bring them into notice and test their merits than by premiums for best results as shown by written reports submitted to a proper committee. Such premiums last season called out but one response, but I believe another trial will do better, and I think the subject worthy of continued effort on our part. In former meetings we have given but little time to the subject of timber planting. This, though not as necessary to Wisconsin as to her sister states, is still very important, and worthy of earnest consideration. Every farm should grow its own timber, but instead of this, thousands are hauling fuel and fencing from two to ten miles, and yet making no effort to remedy the evil. On many and even most farms there are waste places, ravines, or hillsides, or land too stony to plow, which would be beautified and improved by trees, and which might thus yield as good returns as the balance of the farm. Yet through indifference or negligence, they are allowed to go on producing only brambles and weeds.

While it is true that almost any kind of timber will pay well for growing, it is equally true that the very best is as easily planted and grown as that which is inferior, while the difference in value after ten or twenty years is immense. This being so, has not he who asks "what shall I plant," a right to expect from us a more definite and explicit answer than is found in the resolution on page 98 of our last transactions?

This resolution is all right as far as it goes, and with the limited time then at our command, was the best we could do. But whatever the past year has brought to our notice should be fully discussed, and we should gather all possible facts during the coming season, that we may be able to confidently recommend what is most worthy, and the best modes of treatment.

During our meeting, the subject of sending a delegate to the meeting of the American Pomological Society, to be held in Boston the comiug autumn, will come up. It seems desirable that Wisconsin fruits should be fully and fairly shown at that exhibition, and if done at all, it must be done by this Society. If we have an abundant crop, we shall doubtless derive much gratification and benefit from the effort. If the season is adverse,

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we shall be no worse off than others. If we decide to send a delegate, we must each and all of us spare no effort to furnish him abundantly with the very best specimens that can be had.

I have nothing further to recommend, well knowing that though by your kindness I occupy this chair, there are many others earnestly watchful for the interests of this Society, and that, as heretofore, all that is for our good will be brought out by our discussions and acted upon with unity and good judgment.

Following this,

SEVERAL SCATTERING SUGGESTIONS,

BY GEO. E. MORROW OF THE "WESTERN FARMER,"

Were made. These remarks were not written out, but in substance, he said:

It is always desirable to have a clear idea of the object of any meeting. The chief object of this meeting should be to gain and give information; not to pass resolutions as to general subjects, nor to ask appropriations, and especially not to recommend anybody's pet schemes — nor to grind anybody's ax. There is a proper selfish interest which members of this Society may feel, but their interest should not be altogether selfish.

This Society is largely composed and sustained by nurserymen. They deserve credit and honor for what they have done, but a larger membership among amateur horticulturists is greatly needed.

Extravagant statements always do harm, and we should be careful in statements as to profits of fruit growing in the Northwest. Fruit growing here will never be a leading pursuit for large numbers.

We have passed the time of disbelief, passed the time of doubt, and are passing the time for wild enthusiasm as to fruit growing in the Northwest. We are settling down to the habit of looking at fruit growing in a plain matter of fact, common sense, business way.

Horticulture is the culture of a garden, including fruit, flowers, shrubs, and vegetables. This society should give more

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attention to flowers and vegetables, not confining itself to fruit, remembering, too, that its chief work should be among the masses of the people. These cannot be made great horticulturists, but we should work to the end that every country and suburban home shall have a supply of home grown fruits, flowers and vegetables.

New varieties of fruits should be recommended and endorsed only when proven to be better in at least one respect, than well known kinds. It is natural that the propagator of a new variety should think very highly of it, as also the nurseryman who controls all the stock; but societies should remember that the multiplication of our already immense lists of varieties is in some respects an evil, and should insist that new claimants for recognition must possess some distinctive merit. The introduction of new and comparatively untried varieties with a flourish of trumpets has done much harm in the past, and now all new varieties are looked on with suspicion.

The fruit lists of the society should be revised and placed in a connected form. Admitting the force of all arguments against having such lists, there are stronger arguments in favor of them for the Northwest, and they should be put in such shape as to be largely copied as some guide to inexperienced planters. We should look in these lists to securing a larger number of good keeping apples. We now have too large a proportion of summer fruits in our orchards, partly because we have mainly looked for hardiness. This is the first essential, but we should look also at productiveness, season and quality.

There should be a good exhibition of Wisconsin fruits and fruit growers at the American Pomological Society meeting in Boston, in September next, and it would be desirable and appropriate to have the biennial meeting of that society in 1875, held in the Northwest—preferably in Chicago.

In all our discussions, let us remember that there may be more than one way of doing anything, and not insist, because we have grown fruit on high or low, fan-shaped or square cut trees, high or low trellises, that all others must do the same. Let us remember that isolated facts are not conclusive proofs of correctness of theories—and especially let us look at all the facts,

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whether for or against us. The great mass of people require simplicity of method, and are better pleased with large quantity of fair quality easily obtained, than with fine quality, in small quantity or obtained only by much care and labor.

Things new to us are not necessarily new to the world nor valuable. It is not necessary that each of us should commence at the bottom and investigate everything for ourselves. Our fathers knew something about horticulture, and our children will have something to learn. Let us be modest in presenting new and original views, be careful of our hobbies, and have a little respect for what has been learned by others.

If one hundred persons attend this meeting, we shall be well satisfied. Through the more or less extended reports published in the daily and weekly press, tens of thousands may read of what we say and do. Let each member endeavor to influence his neighbors by writing for the local and agricultural papers and encouraging local societies.

A GENERAL TALK

Being in order for the remainder of the evening, Dr. HOBBINS was called upon. Dr. H. said he was more in the habit of talking to the sick than to wide-awake, active, intelligent horticulturists. Always had taken a deep interest in horticulture, and especially in the welfare of this society; and would, on some occasion during the meeting, read a paper which he had himself prepared, but which would express his thoughts better than he otherwise could do.

Mr. PLUMB came to listen to the wisdom and learn of the experience of others. Mr. MORROW had touched upon a theme very dear to most of us. Would inquire how it was that a few years ago, our orchards were all failing. Casting our eyes backward over these, is it any wonder that, at the present time, we are enthusiasts over new fruits? Confess to be an enthusiast on this very theme. Consider that it is necessary for our success in the Northwest. Our lists need cutting down. We need lists for special purposes. In the Northwest, varieties that will give us the bushels, and here, too, we will get the money. First,

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hardiness; second, fruitfulness, and lastly, quality. It was unsafe to rely upon eastern varieties, for many, most popular there, had died out here.

L. WOODARD, Marengo, Ill.—The essayist said, do not take up new varieties unless better than what we already have, but he thought we must seek hardiness, quality, then quantity, but could not see why we should not encourage new fruits? The future success of fruit culture must, to a certain extent, depend on new or unknown sorts. These may come from Russia or other foreign country, or lying to-day dormant in the embryo seed, but the apple of the northwest is yet to be presented, and well may we say, all hail to the coming apple.

A. G. TUTTLE said he must, to a great extent, agree with Mr. MORROW, and thought that we cannot gain anything by introducing new sorts. Said that he did not know of "a good market orchard in the state," and this was a subject that merited attention. Thought it was absurd to plant so many sorts. If money was the object sought, a few hardy, productive varieties would give far better satisfaction, and the fruit be sought for by the dealers, much more than if the same amount we make up of a large list and smaller amount of each. We need something in the west to take the place of the Rhode Island Greening, Baldwin, Spitzenburg, etc., at the east. Would encourage the production of new varieties, but they should be sent out with great caution.

President STICKNEY agrees with Mr. T. in the main,—though as regards a good commercial orchard, it was a rather broad statement, but from his observation thought it was true. Usually about three sorts in any orchard produce, yield all the profit. Then the question is, how shall we root out these unproductive ones? A large list in the hands of the amateur is often desirable for his own use or amusement, but we should use a limited number for the general orchard.

I. J. HOILE thought the day for enthusiasm was not passed. If we had only had a little more of it, we might have been farther advanced. Our field of usefulness was the world—all eyes were turned upon us. We must break assunder the small knots and be equal to the emergency, disseminate new fruits, and as

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fast as a single one was found succeeding in any of the requisites for the west, cling to it like a brother. He doubted very much whether this state society, which had accomplished so much, and was now exerting so vast an influence for good, would ever have had an existence, but for the joint efforts of a few enthusiastic men. The same might be said of all the local societies, the fairs, exhibitions, etc., and but for the infusion of this element, they would lack healthfulness and vigor, if they did not die outright. He thought that if it had been more generally diffused, the interests of horticulture would be more rapidly advanced.

President STICKNEY suggested that

PEAR CULTURE

Would be something new, in which we were all somewhat interested, and called upon Mr. TUTTLE. He said his experience with the Flemish Beauty and Early Bergamot had been satisfactory, until the former blighted. Both varieties were hardy. The latter had done better thus far; it had resisted the blight and has been perfectly hardy; one tree has borne nine bushels of fruit and is doing well. No trees to sell, but considers the Early Bergamot very valuable. Never had any fruit from California that equals it, ripening about August 10th, and is in season for six weeks.

PRESIDENT thought it a great pity Mr. TUTTLE had no trees for sale. Thought he was greatly to blame for not having ten thousand trees to scatter about the State, for they might do much good.

B. F. FELCH, Stevens Point. Facts are facts, and it's no use denying the fact, that if all the successful pear growers of Wisconsin were gathered in one room, it would require but a very small one, and if the money paid for the worthless trees (worthless because he thought their culture a failure) was paid for the fruit, there might be much more of it eaten. Only a very few places were adapted to this fruit. These were some of the facts which the people should know, and not rush into pear culture too blindly. No trees to sell, and why? the winter kills even the crab pear. Have tried various ways to protect, but all to

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no effect,—and in such a state of things cannot see where the use is in putting in more energy. It is true they raise peaches —and pears even further north, but they build houses over them, and unless we recommend some such treatment, he thought it useless to talk pears much.

G. J. KELLOGG more than agreed with the last speaker. Thought that the millions invested in poor trees had made the fruit average about five dollars apiece. Had seen many exhibitions of trials, but almost always a failure. It was even worse than the commercial apple orchards, for he knew many had sought but never a one had found the desired end or success. Early Bergamot may be hardy, but it is a very small fruit, requires two for a bite, but only in clay or a white loam will they succeed. Had tried pears on the mountain as he hoped to avoid the blight.

MR. WOODWARD never saw finer fruit anywhere west or Syracuse, N. Y., than on Peter VANNESS' farm near Lodi. We must remember that our climate is cold, and as with the apple, we must seek varieties adapted to it. Has seen the early Bergamot in Sauk county; found it very promising. Fruit was as large as the Seckel. Believed it was only a matter of time, and we would grow our own pears as we now do our apples.

PLUMB. The general hearer might think the trouble was in the hardiness of the trees, but it is not so; could name a dozen varieties that are hardy. The trouble is in the blight; this sweeps off our trees just as we are expecting the most from them. MR. SMITH, in Jefferson, planted 100 trees; 50 of these were Flemish Beauty. The other 50 soon died. Of late the Flemish Beauty have suffered severely from blight. When we can defeat the blight, and stay its progress, we will grow our own pears as well as any other country of a similar nature. We can all fix our minds on some trees that are succeeding, and when we know why these are a success, then we look for others to do so. The Early Bergamot was first introduced by his brother, in 1840, from New York. Tree is hardy on the prairie, but it will blight.

G. P. PEFFER experimented as much as most men, but probably had not paid out as much money. Commenced experimenting in 1852, and pears had paid him better than apples. Planted in

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his orchard alternate trees, apples and pears. The last two years the blight has affected them very much. Planted very largely of the Winter Nelis—considerable difference in varieties, some are much hardier than others. If we can discover some remedy or preventive for the blight, we can raise pears well enough. With him, they blight much less in grass than under high cultivation. Trees paid all expenses the first twelve years; all after this is clear gain.

Mr. H. W. ROBY said that Mr. POLLARD, gardener to ALEX. MITCHELL, has a fine spreading Bartlett pear tree that produces bushels annually, and is one of the finest trees he ever saw. Mr. P. has also several other varieties that are doing well.

C. H. GREENMAN, Milton, planted a small orchard in rich soil, and they all blighted.

PRESIDENT remarked that friend PEFFER had for years sent wagon loads of pears past his place to market, and was confident they did not cost him five dollars each.

Dr. HOBBINS wished to call attention of the speakers to the fact, as to there being no commercial orchards. The remedy, he thought, was to educate people to buy only of reliable western nurserymen, and they (the nurserymen) should be very careful not to grow or recommend any but the best, and that they know to be reliable, whether for the commercial orchard or amateur. Again, nurserymen should be careful not to disturb the popular notions that may be in the minds of the people. If they can grow Concord grapes and Wilson strawberry, let these be planted, though there may be better varieties for fancy cultivators. But do not try to divert the minds of the masses from such as these, till they are fully supplied and can more readily appreciate a good thing.

Mr. PLUMB thought we were the educators of the people, and as such we should fix a stand point of excellence and stick to it, and soon the better class of planters will adopt it; would like to see vast improvements in our list, but in fixing a new one to send before the people, we should be very cautious.

O. S. WILLEY thought one very great trouble was in the fact of there being so many settlers in the west from Ohio and New York. They were not as well informed upon what to plant as

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they should be, and often called for valuable eastern sorts, and when assured by the nurseryman that the purchaser did not want such, or certain sorts named, the planter was mistrustful, and thought the advice was thus, because the nurseryman did not have it for sale, and often to his knowledge, the next agent came along, a full supply was bought, only of course to bring disappointment. The remedy was plain but not so easy—educate the people.—Adjourned to 9 o'clock, Wednesday morning.

WEDNESDAY, 9 A. M.

President STICKNEY in the chair.

Prayer was offered by G. J. KELLOGG.

First business of the morning was the reading of

THE SECRETARY'S ANNUAL REPORT.

BY O. S. WILLEY.

PAST AND PRESENT OF THE SOCIETY.

To the Wisconsin State Horticultural Society: As the anniversary of our gathering draws near — in fact now is — it is with pleasure we review the past, think where we once were, what has since been accomplished, and what we can reasonably expect from the future.

The first meeting of this Society your Secretary ever attended was in 1860, and there were present at that meeting Messrs. HANDFORD, BRAYTON, PLUMB, STARIN and WILLEY, active members, and three or four others who were interested in the pursuit of knowledge — fruit growing, under difficulties — who lived in the immediate vicinity of Whitewater. This was not quite the organization, but substantially so, of the present Society, and its first published volume was made up largely by extensive correspondence, collecting information regarding successful or disastrous attempts of fruit growing.

How changed the scene at the present time! The last tw volumes of your Report can tell the story far better than your

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Secretary. They speak volumes for themselves, and for the interest that is manifested in horticulture throughout the State. And to the Legislature are we indebted for much of our present success, for through its favors have we been enabled to spread broadcast our deliberations before the people, and through its kindness, still farther manifested during their session last passed, they enabled your Society to well illustratrte the volume with such cuts of fruits and flowers as shall tend to advance the science of Horticulture, and to make our homes pleasant.

There are still farther demands that should, I think be urged upon the attention of Legislatures. The great need of any people is knowledge, and while this State is in many respects ahead of some others, yet the advancement of any people is in just that ratio in which they are enlightened, and the faster and more explicitly this can be done horticulturally, so much sooner will we as a State be acknowledged to stand among the front rank of fruit growers.

ENTOMOLOGIST TO THE SOCIETY.

To further this end, I suggest that we urge upon our friends in the Legislature the need of an Entomologist to this Society. It is well known that our insect enemies are very numerous, our insect friends are also ever present. How to discriminate these should be known, yet it is a fact that at present but very little attention is given to the study of this science, one of the most important of all to the Horticulturist.

If we can have an Entomologist to this Society, and have a full report of all the insects that may come under his observation, with suitable engravings of the same for publication in our annual volume of Transactions, the subject will be thus brought before the people and into thousands of families who would never in any other way be led to know of the varieties and uses of Entomology.

In addition to the labors of a full report, I would suggest that he be required to deliver a course of lectures in the State before the students of one or more of our universities.

With this object in view there has, at my request, been a bill introduced into the Assembly with a view to carry into effect

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the objects as set forth above. I am glad to say that thus far it has met with very favorable consideration, and, should it become a law will be very satisfactory, I think, to the friends of Horticulture in Wisconsin.

The Horticulturists are not alone in the interest of this bill. Every land-owner — whether possessing a city lot or a section of land — can contribute their mite to the destruction of our insect enemies. Then what more useful study can the youthful mind become interested in than this. I know of none of more use to the tiller of the soil, and just in proportion as we are instructed in our pursuits of life so will we be interested.

THE GREAT INSECT ENEMIES

Of the state have been more vigorously at work than ever before. The cry comes to us from every direction: "Come over and help us," meaning, I suppose, "Tell us what to do with the canker worm and codling moth." The latter is injuring our fruit so that it will soon pass for only second rate at best, unless we are relieved, while the former is destroying whole orchards. I have seen a few during the past year that were actully ruined by them. The trees were dead; many of them had already been removed. All the knowledge that can be gained upon this subject should be gathered up. I am glad to know that H. M. THOMPSON has given the subject some study, and will tell us what he knows of insects injurious to horticulture.

AMERICAN POMOLOGICAL SOCIETY MEETING.

The biennial session of the American Pomological Society is to be held in Boston, in September next. This will undoubtedly be one of the most pleasant meetings ever held by that Society. Being its silver wedding, every effort will be put forth to crown it with success.

This state has never been represented at these meetings with a creditable exhibition of fruit. The present meeting should take action to secure the attendance of delegates, and a most bountiful display of fruit. There is no reason why Wisconsin should be second in its display of apples, grapes and pears. Then let us put our best efforts forth and, with one united in-

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terest, make such a display as will redound to our credit, and of which every citizen will be proud.

THE FRUIT LIST

Should be carefully revised. Unless the present severe winter affects our faith, I think we might safely add to our best five varieties some more that are equally hardy, and others might be raised to an honorable position among the best ten. The general list also might with profit be revised and stars added or removed as may be best.

Other fruits than apples should have some attention. We are now growing quite a list of pears in the State. In many sections plums are doing well, and the cherry has long been forgotten at our annual meeting. Some varieties are doing well, and as it is both profitable and good, why not encourage its culture. I know it is said, "the birds get all of mine." Well, we can't spare the birds, but we want both. Besides, it has been a question with me if the cherry of the Morello class is not equally as much at home on our largest prairies as in the timber, and if so, will it not pay here better than the apple and have less birds to contend with?

HARDY SHRUBS AND TREES.

Is it not becoming a society like this to recommend a list of hardy shrubs and trees for this State? Our volume of Transactions is being sought after more earnestly every year, and the information there given is of great value to the ordinary planter. We should strive to make it as complete as possible in all its branches, and in this the nurseryman will find as much ignorance as in almost any other, viz: what to plant.

THE YEAR

Has been one, I think, of unusual activity among the nurserymen and fruit-growers of the state—not as flattering in the fruit produced as some others, still a reasonable success. The demand for orchard trees has been large, meeting, I think I can safely say, the expectations of all. This speaks well for the

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state, for unless there was an increased desire to plant and to eat of the fruit of their own raising, this would not be so. But with a reasonable assurance that certain varieties will succeed, and that Wisconsin can and does raise more than its supply, and looking to the vast country to the north and west for their market, many are already inquiring for a list

FOR THE MARKET ORCHARD.

If any one has a desirable, hardy, productive, keeping variety, place it in this list. The newer varieties that have come before this society are still gaining favor. The Walbridge is giving good satisfaction where best known, and the Pewaukee promises all that its most sanguine friends hoped for it, nor are these all, but other seedlings are in cultivation that I think will prove a blessing to the community and a credit to the originators.

MINNESOTA STATE HORTICULTURAL SOCIETY.

This society held its annual meeting January 14 to 18. Vice President A. G. TUTTLE and your secretary were in attendance. We were most cordially received and entertained by the society while there. The meeting was one of interest and much usefulness. The close relations existing between Minnesota and Wisconsin will make the meetings of the two states of more than ordinary interest and usefulness to each.

We gained much knowledge of use to us, and especially that of a single idea as to keeping apples, was of much interest and convinced me more than ever before that the science of keeping fruit is in its infancy. And it is not improbable that some of our, at present, considered second rate of fruit will, if more scientifically kept, prove to be our best fruit. At the Minnesota meeting there was a fine display of fruit, and usually well kept. It was all well ripened and fair, showing far less depredations from insects than in this state.

Duchess of Oldenburg were shown as fair and sound as the day they were gathered, in August. I expect samples of some here. The manner of keeping was to first place upon ice an inch of sawdust and then a tier of apples, filling the spaces

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with dust; another tier of apples for four or five thicknesses so fruit; cover all with dust a few inches thick; let them remain here till freezing weather, then pack in barrels in sawdust and place in the coolest part of the cellar until wanted for use. In this way Mr. —— has been in the habit of keeping the Duchess of Oldenburg for a number of years past. These were as fresh and crisp as in their ordinary season, and had no offensive flavor as is sometimes the case with fruit so far out of season.

In conclusion, I cannot refrain from extending to the friends of this society my grateful thanks for the very kind treatment and fraternal respect they have ever shown me, and for the very liberal manner in which they have responded to my request for contributions to the meetings, and to the Chicago and Northwestern and West Wisconsin Railroads for favors in attending the meeting at St. Paul.

ANNUAL EXHIBITION, 1872.

SECRETAY'S REPORT.

The annual exhibition of 1872, was much less in extent than it had been for a number of preceding years. There were a number of reasons for this, mainly confined to two. The amount of fruit raised in the state was much less than formerly, and of that raised, a much larger proportion was injured by insects, so much so, as to make it sometimes almost impossible to obtain perfect specimens from trees bearing full crops. There did not seem to be any lack of interest by exhibitors. All were anxious to do the best they could, but most collections were of less magnitude than usual. I note some of the principal exhibitors. If any are omitted it is unintentional. Among

Professional Exhibitors

I found in his usual place, G. P. Peffer, of Pewaukee, with 90 varieties of apples. This was a fine show, but not up to his usual quantity, also showed pears in quite a variety, plums and grapes. Takes second premium, two first on sweepstakes, embracing in his collection beside apples. 17 crabs, 18 pears, 3 plums, 20 grapes, 3 raspberries, 2 cranberries, and one each of quince, blackberry, barberry, chestnut, fig and currant.

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G. J. KELLOGG, of Janesville, had 60 plates of apples. Took the third premium. This fruit is good, and displays care in the selection by MR. KELLOGG. In this collection was a large and fine display of grapes. Took the first prize. All well ripened.

A. G. TUTTLE, of Baraboo, did not like the idea of being outdone, and he was on hand with an unusual fine display of 63 varieties of apples, and took first premium. Sauk county, perhaps, can beat the world; one thing is certain, the fruit from that section seems to be very fine, and hard to compete against. His three Famcuse, as well as largest apple, carried off the prize. MR. TUTTLE'S grapes were fine, but only took the third prize.

W. WOLF had 58 varieties of apples, and took the fourth premium. MR. WOLF is an enthusiastic cultivator. Showed the heaviest apple and took the second premium on pears. Hope to see him again, with plenty of his German friends.

H. M. THOMPSON, of St. Francis, had on exhibition ten varieties of well grown and correctly named apples, and five varieties of grapes, which last took third premium.

MRS. ALEX. MITCHELL, by her gardener, JAMES POLLARD, exhibited a fine collection of peaches, grown in tubs, under glass. These proved quite an attraction, for many looked upon them as the first fruit of the kind ever seen growing. MRS. MITCHELL'S foreign grapes were also very attractive.

C. H. GREENMAN, of Milton, had the best collection, by far, of grapes. Others had more varieties, but these were particularly well ripened, and bunches very perfect. Took the first prize.

A singular coincidence in the premiums on grapes was that, in every case, whether single variety or more, the Delaware was in the list, thus showing the very high estimate that was placed upon it.

J. H. JONES, of Milwaukee, took the second premium on foreign grapes, shown on the vine growing in the boxes, and attracted a great deal of attention.

L. WOODARD & Co., of Marengo, Ill., exhibited 85 varieties of correctly named apples. These were not strictly in competition with the other exhibitors, as the State Society only opened their doors to those of the State; but the committee, in view of

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the superior merit of this collection, awarded a gratuitous premium equal to the first.

The Non-Professional Cultivators

Were out in very good force.

C. H. JACOBS, of Wauwatosa, exhibited 28 varieties of apples.

Mrs. J. W. PARK, of Dodge's Corners, had 53 varieties of apples, and quite a variety of pears; all very fine and attractive.

D. B. PILGRIM, of West Granville, had 23 varieties of apples.

GEORGE JEFFRY, of 5-Mile House, had 27 varieties of apples, crabs, and grapes.

W. REID, of North Prairie, competed for best 10 varieties adapted to the Northwest, and had, also, a fine show of grapes.

E. B. THOMAS, of Dodge's Corners, was a lively competitor in the same department of apples and pears, and carried off his full share of prizes.

D. HUNTLEY, of Appleton, did not take any premiums for best 10 varieties; still, they were good to look upon.

L. S. CURTIS, of Wauwatosa, thought he was showing 10 sorts best, for the Northwest, but the judges found but one which, in their opinion, could be placed in this class.

DANIEL GILSER, of Painesville, had some very fine apples, but not as well named as was desirable.

L. LAWSON, of Oak Creek, had Fameuse apples, that were famous.

F. C. CURTIS, of Rocky Run, had four splendid specimens of Blue Pearmain, also the heaviest apple in this class.

D. MORGAN, of Wauwatosa, had three varieties of well grown pears.

Mrs. J. B. JOY, of Madison, showed native or wild plums of more than ordinary quality.

F. S. LAWRENCE, of Janesville, had twenty-two varieties of grapes, all very attractive, and more than one envied him his success and wished they might go and do likewise.

W. C. PRIEST, of Fond du Lac, put in his claim for best five varieties of grapes, and was reasonably successful.

D. P. and J. O. MYERS, of Fox Lake, showed three varieties of Concord grapes; only fair.

M. ROBINSON, of Milwaukee, had extra fine Concord grapes.

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Nursery Grown Trees,

Attracted considerable attention.

O. S. WILLEY, WOODARD, & Co., of Madison, showing very fine fruit, ornamental trees and evergreens.

F. K. PHŒNIX, of Bloomington, Ill., fruit trees of apples, pears, plums and cherries.

GREENMAN, McGRAW & DAY, of Whitewater, had fine apple trees.

STICKNEY & BAUMBACH, of Wauwatosa, showed an especially fine lot of fruit and ornamental trees, also evegreens in large variety.

A. G. TUTTLE, of Baraboo, had a superior collection of apple and pear trees, but arrived too late to enter into competition. This class can easily be made an interesting feature of the fairs, and one that I hope to see more fully developed—both for the interest of purchaser and grower.

A special attraction of the fair was

Vick's Special Premiums.

This drew out a lively competition among florists, and I think will result in much good in developing the floral interest in the State.

JAMES VICK made a large and fine display of cut flowers, and of a very commendable nature, considering the great distance the flowers were brought. The committee recommended that instead of giving Mr. VICK a premium of "a few paltry dollars, the Society give him the highest premium ever awarded to any exhibitor in our State, viz., a

Gold Medal,

Suitably inscribed, and a diploma. We believe that this high honor is justly due to Mr. VICK, on account of the exceedingly meritorious character of his exhibition."

Other exhibitors in

The Floral Department,

Were

WHITNALL & ELLIS, of Milwaukee, who excelled in their fine foliage plants. A case of Calladiums was much admired by all, as well as their beautiful collection of cut roses.

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Mr. DUNLAP's collection was creditable alike to his taste and skill as a cultivator, while Mr. MIDDLEMAS occupied equally as much room with a choice collection of a large variety well adapted to the wants of trade.

Close by these we found the large collection of W. KITZROW, an old and expert florist.

These were the principal professional florists, and the premiums were about equally divided between them. All showed much taste and skill in the collection and arrangement of plants, cut flowers and bouquets.

Miss KATE PEFFER competed, in her lively, pleasant manner, with the others named, on cut flowers, and is deserving of much credit for receiving several first prizes after expressing by heavy wagon, her pets a day's ride.

Mrs. ALEX. MITCHELL, by her gardener, J. POLLARD, brought out and occupied the usual amount of space with choice specimen plants which attracted much attention, also a case of floral designs, bouquets and cut flowers.

Among the amateurs H. W. ROBY excelled them all with pot plants. Of these we may say, we seldom see a better private collection, and they received their full share of attention and premiums.

Mrs. YALE excelled in the culture of balsams, her show was fine.

Mrs. PARKS and Mrs. THOMAS, each are entitled to much praise for their efforts to please the people. As Wednesday, September 5, was a terrible day, yet with enthusiasm and courage these two ladies, up with, or far ahead of the lark, drove twenty miles, and were ready for duty on the fair ground by six o'clock in the morning. With fingers stiffened with cold, they arranged their flowers in fine order and carried off their full share of prizes.

H. G. ROBERTS' gladiolus, and Mrs. PLUMB's dahlias looked well and were creditable to the growers.

A very attractive floral design was placed on the tables by Miss S. B. BODTKER, of Milwaukee, consisting of a rustic rural house, with twining vines overhead. The house was not of an elaborate architecture, but square in form, sided up with Lima

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beans. The internal arrangements we did not examine, but presume it to have been of the most modern order. In front, with rake, hoe and spade by his side, sat the venerable old Sage of Chappaqua, attired in corn husks, as if he had sought a little shade and rest while he wrote "What I Know about Farming." The design was original and well executed.

Altogether, we may say, this portion of the exhibition was a success, and satisfactory to exhibitors and people, for the public were permitted to look upon a better class of plants and flowers than of any previous year. It has not been my purpose to extol one exhibitor over another — all did well. Far less grumbling was heard over award of premiums than ever before, either creditable to the good judgment of the committees, or the common sense of the exhibitors.

At the annual fall exhibition, the following were

THE PREMIUMS AWARDED.

Class 30—Fruits by Professional Growers.

APPLES.

Best and greatest variety, A. G. Tuttle, Baraboo, $10.
Second best, G. P. Peffer, Pewaukee, $7 50.
Third best, G. J. Kellogg, Janesville, $5 00.
Fourth best, Geo. Wolf, Theinville, $3 00.
L. Woodard & Co., Marengo, Ill., fine show of apples, $10.
Best ten varieties adapted to the northwest, G. J. Kellogg, Janesville, $7 50.
Second best, A. G. Tuttle, Baraboo, $5.
Third best, G. P. Peffer, Pewaukee, $2 50.
Best five varieties adapted to the northwest, G. P. Peffer, Pewaukee, $3.
Second best, G. J. Kellogg, Janesville, $2.
Third best, A. G. Tuttle, Baraboo, $1.

Winter Apples.

Best and largest variety, A. G. Tuttle, Baraboo, $7.50.
Second best, G. J. Kellogg, Janesville, $5.
Third best, Geo. Wolf, Theinville, $2.50.
Best five varieties winter, H. M. Thompson, St. Francis, $3.
Second best, Geo. Wolf, Theinville, $2.
Third best, A. G. Tuttle, Baraboo, $1.
Best three Fameuse, A. G. Tuttle, Baraboo, $2.
Second best, Geo. Wolf, Theinville, $1.

Largest Apple.

Best, A. G. Tuttle, Baraboo, $1.
Second best, Geo. Wolf, Theinville, $0.50.

Heaviest Apple.

Geo. Wolt, Theinville, $1.

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PEARS.

Best and largest variety, G. P. Peffer, Pewaukee, $7.50.
Second best, Geo. Wolf, Theinville, $4.

Best Three Varieties.

Best, Geo. Wolf, Theinville, $3.
Second best, G. P. Peffer, Pewaukee, $2.
Best Flemish Beauty, A. G. Tuttle, Baraboo, $3.
Second best, Geo. Wolf, Theinville, $2.

PLUMS.

Best and greatest variety, G. P. Peffer, Pewaukee, $3.
Second best, Geo. Wolf, Theinville, $2.
Best Miner Plum, G. P. Peffer, Pewaukee, $1.

PEACHES.

Best show named, Mrs. Alex. Mitchell, Milwaukee, $2.

GRAPES.

Best and greatest variety, C. H. Greenman, Milton, $7.50.
Second best, G. J. Kellogg, Janesville, $5.
Third best, A. G. Tuttle, Baraboo, $3.
Fourth best, G. P. Peffer, Pewaukee, $2.
Best five varieties, G. J. Kellogg, Janesville, $5.
Second best, C. H. Greenman, Milton, $3.
Third best, H. M. Thompson, St. Francis, $2.
Best three varieties, C. H. Greenman, Milton, $3.
Second best, G. J. Kellogg, Janesville, $2.
Third best, A. G. Tuttle, Baraboo $1.
Best two varieties, C. H. Greenman, Milton, $2.
Second best, G. J. Kellogg, Janesville, $1.
Best single variety. C. H. Greenman, Milton, $1.
Best three bunches Concord, on one cane, C. H. Greenman, Milton, $1.
Best three bunches Delaware, on one cane, C. H. Greenman, Milton, $1.
Best single variety, quality to rule, G. J. Kellogg, Janesville. (Delaware.) $5.
Best show foreign grapes, Mrs. Alex. Mitchell, Milwaukee, $3.
Second best, J. H. Jones, Milwaukee, $2.

Class 31—*Fruits by Non-Professional Cultivators.*

APPLES.

Best and greatest variety, Mrs. J. W. Park, Dodge's Corners, $10.
Second best, Geo. Jeffrey, 5 Mile House, $7.50.
Third best, D. T. Pilgrim, West Granville, $5.
Fourth best, C. H. Jacobs, Wauwatosa, $3.
Best ten varieties adapted to the northwest, Geo, Jeffrey, 5 Mile House, $7.50.
Second best, E. B. Thomas, Dodge's Corners, $5.00.
Third best, D. T. Pilgrim, West Granville, $2.50.
Best ten varieties, without regard to adaptation, E. B. Thomas, Dodge's Corners, $3.00.
Second best, Geo. Jeffrey, 5 Mile House, $2.00.
Third best Daniel Gilser, Painesville, $1.00.
Best five varieties adapted to the northwest, E. B. Thomas, Dodge's Corners, $3.00
Second best, W. Reid, North Prairie, $2.00.
Third best, D. T. Pilgrim, West Granville, $1.00.

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Best five varieties, winter, E. B. Thomas, Dodge's Corners, $3.00.
Second best, W. Reid, North Prairie, $2.00.
Third best, Geo. Jeffrey, 5 Mile House, $1.00.
Best three Fameuse, L. Rawson, Oak Creek, $2.00.
Second best, Mrs. J. W Park, Dodge's Corners, $1.00.
Largest apple, D. T. Pilgrim, West Granville, $1.00.
Second best, Geo. Jeffrey, Five Mile House, 50c.

Heaviest Apple.

Best, F. C. Curtis, Rocky Run, $1.00.
Second best, D. T. Pilgrim, West Granville, 50c.

PEARS.

Best variety, E. B. Thomas, Dodge's Corners, $7.50.
Second best, Mrs. J. W. Park, Dodge's Corners, $4.00.
Best three varieties, Mrs. J. W. Park, Dodge's Corners, $3.00.
Second best, D. Morgan, Wauwatosa, $2.00.
Best Flemish Beauty, Mrs. J. W. Park, Dodge's Corners, $3.00.
Best native plum, Mrs. J. B. Joy, Madison, $2.00.

GRAPES.

Best variety, F. S., Lawrence, Janesville, $7.50.
Second best, W. Reid, North Prairie, $5.00.
Third best E. B. Thomas, Dodge's Corners, $3.00.
Best five varieties, W. Reid, North Prairie, $5.00.
Second best, F. S. Lawrence, Janesville, $3.00.
Third best, W. C. Priest, Fond du Lac, $2.00.

Best three varteties, W. Reid, North Prairie, $3.
Second best, F. S. Lawrence, Janesville, $2.
Third best, E. B. Thomas, Dodge's Corners, $1.
Best two varieties, E. B. Thomas, Dodge's Corners, $2.
Second best, W. Reid, North Prairie, $1.
Best single variety, E. B. Thomas, Dodge's Corners, $1.
Best three bunches Concord, W. Robinson, Milwaukee, $1.
Best three bunches Delaware, E. B. Thomas, Dodge's Corners, $1.
Best single variety, quality to rule, F. S. Lawrence, Janesville, $5.
(To the Delaware.)
Best variety crab apples, Geo. P. Peffer, Pewaukee, $2.
Second best, D. Morgan, Wauwatosa, $1.
Best plate hyslop, D. Morgan, Wauwatosa, $1.
Best plate transcendant, Geo. P. Peffer, Pewaukee, $1.
Best five seedling crabs, G. P. Peffer, Pewaukee, $2.

Class 32—*Sweepstakes on Fruit.*

Best collection fruit of all kinds—G. P. Peffer, Pewaukee, $10.

Class 33.

Best collection of deciduous nursery grown trees—O. S. Willey, Woodard & Co., Madison, $10.
Second best—Stickney & Baumback, Wauwatosa, $5.
Best collection nursery grown evergreens—Stickney & Baumback, Wauwatosa, $10.
Second best—O. S. Willey, Woodard & Co., Madison, $5.

PLANTATION OF RASPBERRIES.

Second best—R. H. Sabin, Milwaukee, $5.

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Class 34—Flowers by Professional Cultivators.

Best floral design—Whitnall & Ellis, Milwaukee, $10.
Second best—A. Middlemas, Milwaukee, $5.
Best collection cut flowers—Whitnell & Ellis, Milwaukee, $5.
Second best—Miss Kate Peffer, Pewaukee, $3.
Best basket of flowers—A. Middlemas, Milwaukee, $3.
Best pair round bouquets, A. Mlddlemas, Milwaukee, $3.
Best bouquet everlasting flowers, W. Kitsrow, Milwaukee, $3.
Best display dahlias, Miss Kate Peffer, Pewaukee, $5.
Best 10 named dahlias, W. Kitsrow, Milwaukee, $3.
Best display roses, Whitnall & Ellis, Milwaukee, $5.
Best show seedling verbenas, Miss Kate Peffer, Pewaukee, $2.
Best show phlox, Miss Kate Peffer, Pewaukee, $1.
Best show gladiolas, H. G. Robert, Janesville, $2.
Best show tube rose, W. Kitsrow, Milwaukee, $1.
Best show green-house plants, A. Middlemas, Milwaukee, $10.
Second best, W. Kitsrow, Milwaukee, $5.
Best show green-house plants in bloom, W. Kitsrow, Milwaukee, $10.
Best 10 geraniums, W. Kitsrow, Milwaukee, $5.
Best 6 fuschias, W. Kitsrow, Milwaukee, $3.
Best 6 carnations, W. Kitsrow, Milwaukee, $2.
Best display of flowers by exhibitor, Whitnall & Ellis, Milwaukee, $10.
Second best, Miss Kate Peffer, Pewaukee, $5.
Best ornamental foliage plants, Whitnall & Ellis, Milwaukee, $5.
Best five named roses, Whitnall & Ellis, Milwaukee, $3.

Class 34—Vick's Special Premiums.

Best collection cut flowers, Mrs. E. B. Thomas, Dodge's Corners, $20.
Best collection phlox drummondi, Mrs. E. B. Thomas, Dodge's Corners, $10.
Best collection balsams, Miss Kate Peffer, Pewaukee, $10.
Best collection dianthus, Mrs. E. B. Thomas, Dodge's Corners, $10.
Best collection pansies, Mrs. E. B. Thomas, Dodge's Corners, $10.
Best collection stocks, Mrs. E. B. Thomas, Dodge's Corners, $10.

Best collection everlasting flowers, Mrs. E. B. Thomas, $10.
Best collection everlasting flowers and grasses, D. and M. Park, Dodge's Corners, $5.

Class 35.—Flowers by Non-professional Cultivators.

Best floral design, Miss S. B. Bodtker, Milwaukee, $10.
Second best, Mrs. P. Yale, Milwaukee, $5.
Best collection cut flowers, Miss J. M. Thomas, Dodge's Corners, $5.
Second best, J. W. Park, Dodge's Corners, $3.
Best basket flowers, Mrs. P. Yale, Milwaukee, $3.
Second best, Mrs. J. B. Joy, Madison, $2.
Best pair round bouquets, Mrs. P. Yale, Milwaukee, $3.
Best pair flat bouquets, J. W. Park, Dodge's Corners, $2.
Best bouquet everlasting flowers, J. W. Park, Dodge's Corners, $3.
Best display dahlias, not more than 20 varieties, J. W. Park, Dodge's Corners, $5.
Best 10 named verbenas, J. W. Park, Dodge's Corners, $2.
Best show seedling verbenas, Mrs. P. Yale, Milwaukee, $2.
Best show of asters, J. W. Parks, Dodge's Corners, $2.
Best show perenial phlox, J. W. Park, Dodge's Corners, $1.
Best show of pansies, J. W. Park, Dodge's Corners, $1.
Best show of dianthus (pink), J. W. Park, Dodge's Corners, $2.
Best show gladiolus, Mrs. J. B. Joy, Madison, $2.

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Best show green house plants, not over one hundred varieties, H. W. Roby, Milwaukee, $10.
Best display of flowers, raised by exhibitor, Miss I. M. Thomas, Dodge's Corners, $10.
Second best, J. W. Park, Dodge's Corners, $5.
Best show ornamental plants, not over fifteen varieties, H. W. Roby, Milwaukee, $5.

Class 36—Flowers by Professional Non-commercial Cultivators.

Best floral design, Mrs. Alex. Mitchell, Milwaukee, $10.
Best basket flowers, Mrs. Alex. Mitchell, Milwaukee, $3.
Best pair round bouquets, Mrs. Alex. Mitchell, Milwaukee, $3.
Best show green house plants, Mrs. Alex. Mitchell, Milwaukee, $10.
Best show foliage plants, Mrs. Alex. Mitchell, Milwaukee, $5.
Best show green house plants, Mrs. Alex. Mitchell, Milwaukee, $10.
Best six foliage lawn plants, in pots, Mrs. Alex. Mitchell, Milwaukee, $3.

As a whole, the exhibition proved reasonably satisfactory, though the hall was not as well filled as I desire and hope to see it in future. The increased interest that is now being developed in the state, in small fruit culture, should cause more rivalry in class 33; much good might result from this, not in the nominal sum that is paid or received in premiums, but in the amount of information that may be disseminated by the publication of amount of fruit raised, gross amount of sales, together with the net profits from the plantation, as nearly as possible. But one person competed for these premiums in 1862. I hope to see the number greatly increased in the future.

The following statement is made of

PLANTATION OF RASPBERRIES, BY H. H. SABIN, MILWAUKEE.

Thirteen rods of good clay land sloping to the west, and protected by a row of trees on the west. Planted to Doolittle's Black Cap Raspberries, rows seven feet by three. Run cultivator between rows to keep weeds down, and mulched around the plants with chip dirt mixed with a little hen manure.

The new wood pinched down to three feet, and but five canes allowed to grow in a hill. Old wood cut out as soon as done bearing.

All labor, picking and marketing included, done by members of the family at odd times without expense. Yield for 1872, 301 quarts berries.

D.

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Average price of berries, 14c per quart; 301 quarts at 14c, $42.14 net—equal to $518.71 per acre.

At the close of the reading of the report, the secretary said that Messrs. D. HUNTLEY and D. HART were delegates from the Grand Chute Horticultural Society.

F. C. CURTIS, delegate from the Poynette club.

J. J. HOILE, Hon. ROBERT MCCURDY, delegates from Winnebago County Horticultural Society.

Hon. B. F. ADAMS, JAY CAMPBELL, M. E. EMERSON, delegates from the Deer Creek Club.

S. M. DAVIS, A. MORSE, delegates from the St. Croix Valley Horticultural Society.

L. WOODARD, Marengo, Ill, delegate Northern Illinois Horticultural Society.

The delegates were cordially received, and invited to take seats with the Society, and to participate in its deliberations.

SUNDRY CORRESPONDENCE

Was presented. Much of it was of a business character, and its publication is mainly omitted. The following letter was presented from the State Entomologist of Missouri.

ST. LOUIS, MO., January 21st, 1873.

O. S. WILLEY:

My Dear Sir:—I find that I shall not have time to prepare you the intended article for your Horticultural Transactions, before the first of the month.

I write now to ask a favor of you. I am very much interested in the army-worm question, and have for some years been trying to absolutely settle the question of its single or double-broodedness, and whether the winter is passed in the egg or chrysalis state. I believe myself that it winters in the egg state and is single-brooded.

Now you know the visitation by this insect, in the burned districts around Peshtigo and elsewhere in your state, is very significant and may throw a flood of light on these questions. I cannot learn anything, however, which would weaken the belief I now hold. It stands to reason that where there were large open spaces, or large fields of fall grain, even in the midst of the burned district, such fields would not get greatly damaged, and that wherever the grain passed uninjured, there also the eggs of the army-worm would likewise be uninjured.

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Now I want to get at the facts, and the coming meeting of your society will be just the occasion to elicit them. Will you therefore bring the matter up before the society, and ascertain from members having experience:

1st. Did not the army-worm invariably appear on fall sown grain that had not been injured by the fire, except of course, where it traveled from such spots on to others, that may have been burned?

2d. Did it do any damage at all to crops planted in the spring on ground that had been thoroughly burned?

By looking over my 2d report, for 1869, you will see how much these questions interest me: and how important they are. Tell your members tha I shall be happy to receive word from them by letter, giving their experiences; and if you will send me a report of the discussions on this point, you will greatly oblige.

Believe me, Yours truly,

C. V. RILEY.

[I hope that all who can give any information upon this important subject will willingly and promptly reply. There is very much to be learned of the nature of these worms. They are making sad havoc with the crops in many places. Any additional knowledge that can be given, that will afford relief will be a welcome messenger.—EDITOR.]

A communication was presented, as published below, upon the

LIFE AND CHARACTER OF JOHN B. RICHARDSON.

BY JOHN E. THOMAS,

Corresponding Secretary Sheboygan County Horticultural Society.

O. S. WILLEY, *Secretary, etc.*:

As the time draws nigh for the annual meeting of the State Horticultural Society, I find that I shall be unable to attend, and hence take this method of making a few suggestions in reference to the late JOHN B. RICHARDSON, who was an active and respected member of our county horticultural society, and who did so much to awaken an interest in horticulture and floriculture in this portion of our state. Seventeen years ago, MR. RICHARDSON started, in company with others, a small nursery near this village, but the intensely cold winter rendered the attempt a failure, and his partners lost courage and abandoned the enterprise. MR. RICHARDSON was cast down by the failure, but no

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disheartened. He rallied again, and about nine years ago, he established the "Sheboygan Falls Nursery," which under his watchful eye and skillful hands had, at the time of his death, grown into respectable proportions; he having 17 acres in to nursery stock; he was selling largely in this state and to a considerable extent in Minnesota. He was enthusiastically devoted to his flowers, shrubs and trees, and fairly wove his life into them. He was not only enthusiastic himself, but he inspired others, and the organization of our county society was mainly due to his exertions. He talked much upon the subject, and used his pen with good effect in the same direction. A short time previous to his death, he had completed a hot house where he collected many rare and beautiful flowers and plants, and these flowers daily offer up incense to his memory.

But I did not set out to write an eulogy; and, with an extract from an essay read by him before our society in February, 1871, I will close:

EXTRACT.

" * * * * The more, then, we instil into the minds of our youth, the love of our delightful art, the more they will appreciate the beauty and perfection of the external world, and the more will their souls become invested with that purity and refinement which enlarges the sphere of social happiness here.

"The love of flowers, and the cultivation of them, is evidence that true and pure sentiments are in the heart: that a love for the beautiful has dawned there; that the elements of progress are at work. One would scarcely love flowers merely because they are beautiful; but when he breathes their fragrance and witnesses the manifestations of nature's love and wisdom in their structure and growth, then, indeed, are deeper and holier sentiments underlying the love of them awakened.

"Cultivated flowers and fruits are evidences of higher civilization. They are a sort of floral thermometer, indicating in some degree, the intelligence and refinement of the people; and their indications are as significant as are the evidences afforded by architecture, painting, poetry, or similar arts and sciences. The lessons of these gentle teachers are having an influence over the habits and manners of our people that will long be remembered. Fruit and flowers are the steady, impartial friends of all. The love of flowers is the love of nature in detail. It is the union of affection, good taste and natural piety." * * *

This extract only but truly illustrates the finer feelings and pure emotions which emulated the deceased in his actions.

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Secretary WILLEY remarked that for the last sixteen years of deceased's life, it was one of activity and ambition beyond his strength, and a great desire to spend his time and talents in the business he so much loved. The deceased was often heard to remark that the more he engaged in horticulture the better he liked it. About two years prior to his death he had a paralytic shock; since that time he had been unable to labor, but his mind was more active than ever, and when urged to reduce his business, would reply he constantly saw more that is beautiful in horticulture and more that he needed to live for, feeling that he had not yet filled his mission on earth. Death's door was waiting for him, and though he had been very feeble for months, yet not until the last two and a half weeks did he suffer materially. These last few days were full of intense anguish, being obliged to sit in his chair all the time. The deceased was born in Catskill, Green county, N. Y.; was forty-two years old April 2, 1872, and died May 5, of the same year. He was not a professor of religion, but his genuine good and kind feelings towards all, commended him in kindness to his fellow men.

His writings were brief and practical—being only an occasional contributor to our state horticultural literature. A friend writes:

"With surprise and regret we learned, on Tuesday last, of the death of Mr. JOHN B. RICHARDSON of Sheboygan Falls. Though his health had been poor for some years past, yet we had hoped that many years of enjoyment in the business he so loved, and labored to advance in this county—horticulture and floriculture—and which was just becoming remunerative, were yet in store for him. But it seems destined otherwise. He was a gentleman of refined taste, of humanitarian impulses, greatly respected by all, and loved most by those who knew him best, and his loss will be deeply felt by the latter and regretted by the former. The family of the deceased will receive the warm sympathies of the community in their great bereavement."

PRESIDENT said that none who were present at the annual meeting, two years ago, will forget the interest the deceased took in our deliberations. Though his health at that time was very poor, yet he was much interested in all that was done, and the paper prepared by him and read at that meeting was practical and valuable.

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GEO. E. MORROW offered the following resolution, and moved its adoption:

Resolved, That this Society have heard with deep regret of the death of JOHN B. RICHARDSON, an energetic and efficient member, and a friend to and worker in all horticultural adornment; that we have heard with a sad pleasure the appreciative tribute paid to his memory in the paper read and the remarks made before us, and we direct that these be placed on the records of the Society, as expressive of our estimate of our late fellow worker.

Carried.

REPORTS OF LOCAL HORTICULTURAL SOCIETIES

Were made, and without exception, all were shown to be in the most prosperous condition.

Mr. PLUMB said that C. H. GREENMAN and himself represented the Milton Society. The society had been prospered beyond their expectations during the year just closed, and thought it was doing a good work.

Mr. LAWRENCE said that the Janesville Society had not made any exhibitions, but they were alive, and doing what they could to help on the cause. Had been quite encouraged, till one of their number (KELLOGG), had been talking here about five dollar pears—but was confident the society could improve on the past.

Mr. MORROW said the Madison Society was the oldest society in the state. During the last two years the extreme drouth had hurt the general appearance of the exhibitions, still they had never failed to have one or more each season, and the effect of them was plainly marked upon the window and garden floral culture of the city.

C. WATERS, Vernon county, reported an organization just formed and well under way. Was confident that there was enthusiasm enough in its members to accomplish much good. Would guarantee to furnish their full quota of fruit for the Boston Exhibition.

Mr. HOILE said: The chief object of the Winnebago County Horticultural Association is to create a co-operative organiza-

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tion of the horticultural interests of the several sections of this county; and to unite all in a combined effort to advance the useful ends of this important branch.

As a practical means of accomplishing the above purpose, this association is required, by the terms of its organization, to hold meetings in the different parts of the county, for the purpose of discussing the practical aids of horticultural advancement, and the imperative necessity of a more widely extended knowledge of what is of such paramount interest to all.

By this distributive arrangement of the meeting, they could reach and enlist many more persons than by holding them always at a given point. Always select two or three persons to open the discussions, and then there was no trouble to get others to follow with something new, or an expose of what these speakers had said.

L. WOODWARD, of Marengo, said that at the meeting of the Northern Illinois Horticultural Society, there were several delegates (himself among the number) appointed to attend the Wisconsin meeting now in session. The others had not yet put in their appearance, but he thought they would.

On motion, Mr. WOODWARD was invited to a seat in the convention, and was also elected an honorary member of the Wisconsin State Horticultural Society.

FRUIT CULTURE IN NORTHERN WISCONSIN.

BY B. F. FELCH, STEVENS POINT.

Mr. President—I shall not attempt a history of the commencement and progress of fruit culture in this state; nor can I in one essay speak of the different varieties of fruit now in cultivation. The apple being our most important fruit, and the leading inquiry among horticulturists being where, what, and how to plant and cultivate it, I will confine my essay to these general inquiries, they embrace a wide field for investigation, and it would require volumes to do them justice. I shall, therefore, not attempt a thorough treatise on either of the above nquiries; but will give my experience and observations in

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regard to trees, in as short and concise a manner as possible; endeavoring to advance no theories or practice except what have come under my immediate observation.

THE BEST LOCALITY FOR AN ORCHARD.

In determining the adaptability of any locality to orchard purposes, we must consider, latitude, altitude and locality in regard to bodies of water, to prevailing winds, to cold or warm currents of air and composition of soil. The modifications of of all these several agencies, go to make a locality more or less favorable for fruit culture. On what is usually termed clay land, as distinguished from sandy land, appletrees do better than upon sandy lands; this is especially true where the climate is severe. In regard to altitude, the lower a particular section of country, other things being equal, the higher the mean temperature, and if arable fertile land, the better adapted to fruit culture. This applies especially to those localities north of 42 or 43 degrees; near lakes and rivers, where the country is comparatively low and the soil fertile, we find some of the most favored localities for fruit.

WHERE TO PLANT,

Or what locality on a given tract of land would be best adapted to orchard purposes, is subject to so many modifications, that it is difficult to give a general rule. I would say, that particular portion which is the most free from frost, and also the best protected from winds. In an uneven or hilly country that best locality may be found at the foot or top of a bluff, or on the southwest, north or east side; depending upon the hight of the surrounding country, belts of timber, locality of bodies of water, varieties of soil, etc. On most farms, where the country is tolerably level, there is but little preference. The best locality usually being that the best protected from winds, and if possible elevated a little above the surrounding tract of land. The northeast side of a bluff is usually preferable to the south or west side as affording better protection from the southwest and northwest, our prevailing cold, dry winds.

The subject of

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PROTECTION TO ORCHARDS

Should be thoroughly understood, and its principles put into practice by every fruit culturist. I believe that it would not only pay in dollars and cents, but also in beautifying an orchard, to set five per cent. of the trees in an orchard, evergreens. Thorough protection by forests does ameliorate the climate to such an extent that, for illustration, orchards in the vicinity of Fox river, near Berlin, and other localities on the extreme northern limit, of the pear, cherry and most varieties of apples, being thoroughly protected by heavy timber, compare more than favorably with orchards in southern Wisconsin and Illinois—two and three hundred miles south, where the winds meeting but few barriers, sweep over the vast prairies. The question is often asked:

"WHAT ARE HARDY VARIETIES OF FRUIT?"

As I understand the term, it means those varieties in a locality which, by good care and culture, are seldom injured by the vicissitudes of the climate. As the orange is hardy in some parts of Florida, but not farther north, the peach is hardy in some parts of Michigan, but not in Wisconsin. The Rambo, Spitzenberg, Baldwin, Rhode Island Greening, etc., are hardy in some localities in this state, but generally esteemed tender. The Golden Russet, Tallman Sweet, Fameuse, Duchess and Red Astrachan, are esteemed by our best fruit culturists, in southern Wisconsin, as not only hardy, but extra hardy; and to distinguish their superior properties for withstanding severe winters better than other tried varieties, they have applied to them the name "iron-clad," meaning impregnable. But north of a line extending from near the Mississippi on the east side, opposite the southeast corner of Minnesota, thence north of east to the southern part of Adams county, thence northeast, including the villages of Wautoma and Weyauwega, thence to Menomonee, on Green Bay, a line corresponding nearly with the northern limit of the pear and cherry, as indicated on a map prepared with much care and precision by J. G. Knapp, for the State Horticultural Society, and appended to their transactions for 1871, there

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is no more propriety in planting the Golden Russet, Fameuse and Tallman Sweet, than the pear or cherry. Where these varieties of apples can be grown with profit, the hardiest varieties of the pear and cherry will succeed reasonably well. There are a few localities north of this line, where these and more tender varieties are grown, but these localities are so few they hardly form an exception. I have lived north of this line eighteen years; have been engaged in tree growing, and do speak what I do know.

With the demarkations as pointed out on Mr. KNAPP'S and other isothermal maps, and the present experience of fruit growers in the northern part of this state; the plea that "Dad raised lots of pears and cherries (or this or that variety of apples) in Varmount and Ohier," down on the Wabash in Suckerdom, or even south of the northern limit of the pear and cherry in this state, will be no abatement to the folly of buying tender trees to set north of this line. This sin of ignorance was to be winked at when we were enveloped in fog; but now that way-marks are established, and the light of experience has cleared away uncertainties to a great extent, he that doth imprudently purchase pear, cherry or tender varieties of apple trees to set north of this demarkation is guilty of waste of time and money. Those living north of this line must look to those north of this line for information in regard to what to plant that will withstand the arctic winters. The horticulturist south of this line has no practical knowledge of what will do best north. By experience he has ascertained what is hardy with him; by experience we know what is hardy with us. This experience, many of us have paid very dearly for, and we now offer to others believing in the old maxim, that: our lamp burns no less bright because others profit by its light.

We should set trees adapted to our several localities in regard to hardiness. Nature never designed that the lemon or the orange should be cultivated in Wisconsin; and we believe it beyond the skill of man to adapt them to our climate. We would all have a very poor opinion of a man's judgment who should buy these trees for orchard purposes in this state; but in my opinion, it would be about as judicious as to invest in the

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common varieties of pears, fine cherries, or tender varieties of apples for the most localities in the southern part of this state; or in the hardiest pears, cherries and the majority of the varieties of apples termed "iron clads," to set north of the limits of the pear and cherry. So many varieties of apples have been tested in the southern part of this state, that almost any one by inquiring of his neighbors may ascertain quite correctly what varieties of apples would pay best for orchard purposes. For the benefit of our uncles and cousins coming from the East I would here suggest that the climate in Wisconsin, in the same latitude of that of the eastern states, is vastly different; we are hard to beat for big pumpkins, squashes and melons, even way up north, but such is our peculiar climate, that but comparatively few varieties of apples can be cultivated with any degree of profit.

Please learn what to plant of those that were here first; in regard to whatever else you see fit to instruct us we will gratefully listen. I will give a list of what I believe to be the

HARDIEST VARIETIES OF APPLES,

And which will do well in most localities south of the norththern limit of the pear and cherry: Baltimore (Ben Davis), Golden Russet, Tallman Sweet, Canada Black, Utter, German August, Red Astrachan, Boravitsky (Duchess of O.) Fall Orange, Northern Sweet, Fameuse, Sweet Pear, Tetofsky, and best varieties of Siberians for sauce, cider, preserves and jelly. Varieties of apples to set north of the limit of the pear and cherry, as yet ascertained, are quite limited. Baltimore (Ben Davis)—Boravitski (Duchess of O.), Hass, German August, Tetofsky. All the better varieties of the Siberian pay well for setting in this latitude.

Previous to 1850,

PEACHES WERE RAISED

Without any protection whatever, quite successfully in many parts of this state. The northern limit of the pear and cherry must have been farther north previous to that date than for the past twenty years. Past data lead us to believe that isothermal lines vary somewhat in terms of years, and we may see that

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time again when we shall be able to raise many varieties of fruit that are now too tender for our rigorous climate. To correct a false impression, quite widely diffused, I will notice

QUALITY OF FRUIT.

I saw in a public journal, not long since, an article about fruit written in very good style, but from appearance, the writer had been misled in regard to quality of fruit, and being a new comer, was not posted in regard to our climate. He says: "Instead of devoting our time to growing crabapples and such sorts as the Duchets of Oldenburg and Tetofsky, etc., we can grow the Williams Favorite, Night Cap, Nodhead, etc., as well as we can grow them in Maine," I give this as an illustration of a prev alent opinion among certain classes, that our hardy fruits are of so poor a quality as to scarcely pay for production. Such is far from being the truth. This false estimation of our best varieties of fruit is disseminated through our public journals by a certain class of horticultural writers, who have no good word to say of our best fruits for general cultivation.

These fruits are too common. They will do well enough for the millions, but for their refined palates they are either too sou-rou-our, or too sweet, insipid and flat. Such is the depravity of human nature, that mankind are given to fault-finding with the special blessings by which they are surrounded; their greatest blessings being the most favored mark at which they vent their spleen. The quality of the same variety of fruit varies materially in different localities; for illustration, we raise in northern Wisconsin a large, white apple, with red streaks, described by WARDER and others as the Boravitsky, but familiarly known here, with one other variety very similar, as the Duchess of Oldenburg. It is described in books as being of poor quality, but that is not its reputation here. It is here the best apple of its season. Our fruit dealers receive apples from many different places in this state and from Michigan; yet the Boravitsky raised here is not excelled in appearance or quality by any of these apples, and brings the highest price in market. A few years since, it was difficult to take up a horticultural paper without seeing one or more articles in the interest of

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THE SIBERIAN.

They were sold from 50 cents to $9 per dozen, one year old, cut back to one bud each. A good sized, four year old tree was sold from $2 to $5 each. Eastern nurserymen shipped thousands of the Red Crab west, and sold them for the transcendent at 50 cents to $1 each; western nurserymen were not outdone by their eastern brethren. They sold Siberians at extravagant prices, often misrepresenting the size of the fruit; and some even sold thousands of worthless seedlings of the little Red Crab, that bore fruit no larger than thorn apples, and were scraggy trees with rusty foliage. No wonder that people became weary of being cheated, swindled and humbugged with Siberians. But for all this humbuggery and swindling, facts remain unchanged. Some varieties of the Siberians make the best sauce, cider, preserves, sweet pickles and jelly of any other fruit; they are also among our most ornamental trees. When in bloom, what tree can compare with them in beauty; the foliage of some varieties through the summer months is hard to surpass; and when autumn comes and it is decorated with ripe fruit, no other tree or shrub can compare with its beauty and splendor.

Some say there is no demand for the fruit—it won't pay. That has not been my experience. I have received for my best Siberians from $2 to $4 per bushel, until last fall, fruit being very plenty, I sold as low as $1.50 per bushel; as they were so cheap here, I resolved to try shipping them; therefore, I sent a few barrels of Hyslop to Chicago. When they arrived there, apples were unusually cheap; common apples being quoted at $1.50, and extra winter apples at $2.50 per barrel. I received for the Hyslop $5.00 per barrel. My cider, by using about half sweet Siberians and half sour, brings me from 40 to 70 cents per gallon. I can, one year with another, raise two bushels of Siberians as readily as one, of the common apples; and some few varieties of the large apple bear as abundantly here as any other part of this state. There is now a large variety of the Siberians, quite a number of which are as large as the Lady apple or the Red Romanite; and some nearly as large as the Fameuse; as an eating apple, there are some varieties that are not excelled. By planting the seed of the best varieties of

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Siberian, we shall eventually have a class of medium sized apples, possessing the quality of the best common apple and the beauty, hardiness and productiveness of the Siberian. Every orchard should contain more or less Siberians, and especially, north of the latitude of the pear and cherry, they cannot be overestimated. I will now say a few words about

NEW VARIETIES OF FRUIT.

My advice is "touch them lightly;" don't be too fast about extolling them until they have been well tested; set sparingly of new varieties; give them good care; watch them closely and give the public a just account of your experiments. We should all endeavor to profit by past lessons. Some of us, not very old, remember that famous apple the Rubicon, that was first brought from Michigan; it was represented as being as hardy as an oak grub. It doubtless was in Michigan, where the peach was considered hardy, but in Wisconsin, in most localities, it proved to be so tender as to be perfectly worthless. The Marengo Siberians, lauded to the sky, once sold at the fabulous prices of 75 cents to $1 per bud; yet they were not half as much of a humbug as many other things in the horticultural line, as they are really a very good little apple, but not one-half as large and no better quality than a dozen other varieties that have never received a notice in a public journal.

Special varieties of apples are not the only horticultural humbug constantly thrust before the public, but varieties of pears, so extra hardy that they will not survive a second winter. Cherries of rare excellence; thousands of the old red cherry, that sprouts from every root, are sold annually for the Early Richmond. Of small fruits, we all remember the Mexican ever bearing strawberry, everbearing raspberries, luscious grapes of varieties too numerous to mention, and prices so extravagant that no modest man will admit that he ever purchased one; the Missouri blackberry, etc., etc., all—all examples of the fallibility of poor man's estimates of the superior excellence of property of which he owns a large share or the principal stock in trade. After deciding upon a locality for an orchard, and judiciously selecting varieties adapted to that locality, the next consideration is, where to obtain

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THE BEST TREES.

I would say of the nearest nurseryman who has adopted the practice of using long scions and short roots, setting grafts deep and hilling up every fall; this causes a greater share of the grafts to root from the scion, which I believe makes trees doubly valuable. They are then natural, being upon their own root, and therefore being fed by natural aliment. The cause of premature decay and death of orchard trees may frequently be traced to the fact of uncongeniality of the root and top; hence the prejudice to root-grafting that has frequently been so prevalent. As an example of uncongeniality I would notice the wild crab, which is so uncongenial to most varieties of the common apple, that but few varieties grafted into it will grow even the first season, and of those that will grow, but few will survive the first winter; the Tallman Sweet being the only variety that I have discovered which is well adapted to the wild crab; the White Thorn also is quite uncongenial to most varieties of pears; those grafted into this stock usually being very short lived. Many varieties of apples are almost as uncongenial as the stock above cited. The want of adaptability of root and scion not only may affect the growth of a tree, sometimes causing a prodigious growth, at other times a scion set into an uncongenial stock or root will remain without scarcely a change of size for a number of years before dying out; sometimes bearing fruit annually, but it may affect the size of the fruit; some varieties of stock making the fruit larger and some smaller. I have also seen a number of instances of modification of flavor of fruit, but this is an exception which rarely occurs. In regard to

EASTERN TREES.

Some have done extremely well in this state, but they have generally been a failure. Our eastern brethern have raised trees until they have the trade too well learned. They are more proficient in tree-growing than we are; they manure highly, as the thriftier a tree grows, the less trouble to keep it straight and the better it looks; the more manure also on old land, the less roots. They consequently grow trees quite straight, trim them high, as they pack to better advantage and are more pleasing to many;

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their trees are usually succulent, few roots, small top, and pack as readily as so many whipstocks or hoe-handles, and are frequently of no more value for orchard purposes. After making a selection of what we believe to be the best, we next consider

HOW TO SET TREES.

I would prefer to set trees a little west of north and south, in rows from twenty to thirty feet apart, and no more than twelve feet apart in each row; one tree will then protect the other. Dig the holes large enough to receive the roots without cramping them; on sandy land, set trees two to four inches deeper than they were in the nursery, in dry clay land about same depth, on damp land not as deep; hill up around the tree, three or four feet, four or six inches high, sometimes the dirt should be raised a foot high. On wet land, where the soil is sufficiently dry to warrant the setting to trees, it sometimes is best to raise small mounds to set trees on. In setting trees do not tread the ground hard around them, let it remain somewhat light, as it will retain the moisture longer. If the ground is dry when trees are set, put one or two pails of water around each tree; after planting, mulch with coarse manure around each tree for about three feet and four to six inches deep; it sometimes pays to prevent evaporation to throw two or three inches of earth over this mulch. Trees set in this manner seldom need further watering. We will now consider the

TREATMENT OF ORCHARDS.

Fruit trees usually draw the greater part of their nourishment from near the surface of the ground; this being a fact, every consistent man should realize the impropriety of robbing his fruit trees by sowing any crop among them that derives its nourishment from the same source—as wheat, oats, small grain in general, and grass. Clover has long roots, and derives a part of its sustenance from below the surface roots of trees and a greater part of its growth from the atmosphere. It is about the only crop that should ever be sowed in an orchard. As a general rule, orchards, until the trees are quite large, do better plowed very

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carefully each season, being careful not to break the roots or bark the trees, and kept clean from weeds by cultivating and hoeing. Corn, potatoes and beans or other hoed crop, may be planted among them, until they bear sufficient to pay for cultivating without any other crop, when I deem it poor policy and economy, as a general rule, to raise anything but fruit on the ground.

To guard against heat, cold and drouth,

TREES SHOULD BE MULCHED

Around the trunks yearly, with coarse manure, straw or other substance, four or six feet or farther, depending upon the size of the tree. Chips should never be used for mulching on sandy or other porous soil where the ground is cultivated, as they become incorporated with the soil and add to its porosity, which is worse than useless. Generally, the best place to apply chips in a sandy country, is on the highway. Some varieties of apples are perfectly hardy in some localities, except they are liable to special

CLIMATIC INJURY;

As bark bursting near the roots, or at or near the juncture of the large limbs with the trunk; others are especially liable to what is usually termed sun scald; injury to the trunk usually upon the south or west side. These liabilities may be remedied by using hardy stock and top grafting, some varieties of the Siberian are excellent for this purpose; this can also be guarded against by banking trees early in the season, and by protecting the trunks with boards, hay ropes, or better, with bark cut the exact length of the body and curled around, where necessary; the main limbs for a certain distance, may be wound with hay or straw ropes; this protection to the body of the tree also shields it from the sapsuckers, which are very destructive to young orchards in many localities. There is a long list of varieties of apples but little hardier if any than the common varieties of the pear. The question has been asked for years, how shall we grow these varieties? many continue to reply, "graft them into hardy stock." I have experimented extensively, but can-

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not appreciate this advice. If a variety of apple tree is tender, that is, if it is injured by the cold at 20° below zero and is totally killed at 27° or 28° below zero, you may graft it into whatever stock you see fit, high or low, whenever the thermometer indicates 27° below zero, your graft will be dead. The only practical method of raising these tender varieties of fruit where the climate is too cold, is to grow them low so they may be easily covered before they are chilled by the breath of winter. Peaches, pears and plums pay better for this extra trouble and expense than apples.

If we would be successful in fruit raising, we must conform to nature's established laws in regard to the forms of trees. In localities where trees are exposed, as on prairies or openings, the trunks are invariably short; also, when trees are carried beyond their natural locality where the climate is colder, they continue to grow shorter and shorter, until the towering tree in its native climate becomes a mere shrub when grown far beyond its natural locality, where the climate is much more severe. The more fruit trees are exposed to strong winds or severe cold, the nearer the ground their tops should be formed, and the greater their need of protection. Climate, to a great extent, even modifies the necessity and propriety of

PRUNING.

Much more pruning may be done without injury to trees where the climate is mild than where it is severe. The old barbarous practice of cutting and slashing trees has been the cause of the premature decay of many an orchard. Some varieties of apple trees require some pruning, and others should never be pruned except to cut off cross limbs that chafe, and sprouts from the roots, trunk and large limbs. Spare the knife and save your trees, is a motto that all northern orchardists especially should adopt. I believe the prevalent practice of severe pruning, east, west, north and south, to be a scourge to the fruit growers' interest that is only equalled by the ravages of the codling moth. The root and top of a tree are so intimately connected and mutually dependent on each other, that when the tree has a root in the least congenial, the

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top controls the growth of the root and *vice versa.* The growth of a tree may be checked and the tree injured as readily by severe top pruning at certain seasons of the year, as by root pruning. This does not apply to diseased trees or to trees in their dotage. We notice in nursery rows, that certain varieties of trees have double the roots of other varieties that were grafted at the same time into the same lot of stock, set in the same soil and received like culture; also, that the larger the top, usually, the more numerous the roots of a tree. In conclusion, I would say, "set the best trees obtainable that are adapted to your special locality; take proper care of them; screen them, from their trunks and roots, from the frosts of winter and the heat of summer; cultivate them carefully; prune and fertilize them when they require it, and kind Providence will reward your labors with an abundance of fruit, and you will enjoy the satisfaction and assurance of having done a good thing.

Mr. WOODARD had listened with much interest to the essay just read. He would not like to meddle or attempt to educate others in the best way to make grafts, whether on long roots, whole roots, or very short pieces of roots. He was well aware that it was a question on which there was quite a difference of opinion—though he thought it was much less so now than formerly. As far as his own experience went, he could say that he had been much more successful with long roots, and to make but one graft from each root. Got better trees in the nursery and was confident such trees gave better satisfaction in the orchard.

Mr. FELCH said his object in the short roots was, that with long roots he could not plant deep enough to get roots from the scions,—his soil was heavy.—on light soils it was otherwise. Spoke in high terms of the Baltimore. In answer to question, said that by the Baltimore he meant the Ben Davis.

PLUMB. The Baltimore from WARDER is not Ben Davis; has scions from him and they are very different. Exhibited scions of each, showing a distinction.

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The PRESIDENT appointed the following

STANDING COMMITTEES:

To Confer with the State Agricultural Society.—F. S. LAWRENCE, C. H. GREENMAN, CHAS. WATERS.

On Premium List.—G. J. KELLOGG, GEO. P. PEFFER, A. G. TUTTLE.

To Nominate Officers.—C. H. GREENMAN, GEO. P. PEFFER, F. S. LAWRENCE.

To Examine and Report upon Fruit on Exhibition.—J. C. PLUMB, B. F. FELCH, I. J. HOILE.

On Observatory.—J. M. SMITH, Green Bay; G. J. KELLOGG, Janesville; I. J. HOILE, Oshkosh; C. WATERS, Viroqua; C. H. GREENMAN, Milton.

On Nomenclature.—J. C. PLUMB, Milton; A. G. TUTTLE, Baraboo; W. FINLAYSON, Mazomanie.

On Report of Treasurer.—A. N. SEYMOUR, F. C. DAY, S. M. DAVIS.

THE ANNUAL EXHIBITION.

Mr. LAWRENCE would like an expression from the society, as to their desire in an arrangement of a joint exhibition with the State Agricultural Society.

Mr. KELLOGG thought this society's membership tickets should admit the holders to the annual fair.

Prof. DANIELLS showed conclusively that the idea of Mr. KELLOGG was impracticable, and especially so when their memberships were of a different amount.

Mr. MORROW agreed fully with the Professor, and thought that if we could get the same amount, and on the same terms in other respects as last year, that it ought to be satisfactory. Thought the idea of cutting aloof from the agricultural society in our annual exhibition, was a very impracticable one. With ever so good a show, he was satisfied that we would fail to draw together enough visitors to make it pay expenses.

Mr. PLUMB: We want to meet together at least once a year with their society. And if we attempt to cut aloof, we will still linger around the old tramping ground. We were the first state to ever hold a joint exhibition. The result has been thus far most satisfactory. Other states had tried to run alone or separate, and always made a failure, and sooner or later joined their forces and were more prosperous.

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Mr. WILLEY thought we were not prepared to separate. The agricultural society first gave us $600. As soon as they could afford it they made it $800. Was satisfied they would now be willing to make it $1,000 if they had any surplus in their treasury, but as they did not have, we were really better off than they were, and would move that the committee of conference be instructed to ask for the same amount to be offered in premiums as last year; which was agreed to.

A paper was next read, upon

THE GRAPE AND ITS TREATMENT.

BY JOSEPH HOBBINS. M. D.,

Ex-President of the Society, and F. G. S. and C. M. R. H. S., England.

Desirous of showing that I still take an interest in this Society, I have thrown together some remarks upon the grape, which, if not in themselves of much importance, will, as I trust, attract the attention of those gentlemen present, better acquainted than I am with grape culture, and elicit the information for the public which I may fail to impart.

It is well known to many of the old members that I have made grape growing the occupation of my leisure hours for many years past, seeking, after testing, to introduce the vine into this state. My experiments have been made upon nearly two hundred varieties, of which I have in my garden at the present time about one hundred varieties left. Among these are some comparatively worthless—at least to us—by reason of their not bearing well, or of their poor quality, offensive flavor, or because too tender for the climate, too void of flavor, or too subject to disease. Some do not ripen in season, while others, good for wine, are not suitable to the table. I find, also, that those which are most advanced have, for the most part, nothing in their qualities as a grape, but simply sweetness to recommend them, a quality in itself insufficient to constitute a good grape. Besides, there is something more or less wrong in the skin of most of them. Not only toughness and thickness, but a quality of acridity that often makes the lips smart and the mouth sore.

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There is also, in nearly all of them, a coarseness of flesh—too much solidity.

Time, however, and cultivation, will do much to improve these defects, and from the very great improvement effected within the last ten years—the advance from the Clinton to the Iona, the Walter, the Cunulan and Talun. I have entire confidence that *the good grape* we want, but to-day have not—is on its way, and will come. I mean the grape which is luscious to the lip, whether in the berry or in the bottle. But I know that I am correct when I say, that neither on the other side of the Rocky Mountains, nor on this, are our grapes what they should be, either for the table or for wine making.

Dismissing, however, the defctive varieties from our experimental list, in the multitude of varieties left, may, as I believe, be found one or more good vines adapted to every locality of this state. So that, while so mauy varieties have failed, I doubt not that every man who owns a lot or a farm in Wisconsin, can find among the varieties which remain, a vine under which he may sit and eat his fill of the fruit thereof. Nor should he be deterred planting by the fact that the grape is no longer a dear but a cheap fruit with us. Boughten fruit is good, but there is none so good or sweet, as that which we grow for ourselves. Neither should a man be prevented from growing the grape by the false idea that it requires great care, or trouble, or cost. Vines are cheap, very cheap, and good ones will yield something even without care, unless it be winter shelter; and again, will yield a greater a abundance of fruit just in proportion to the care you give them.

To succeed in growing the grape, we have much to unlearn and still more to learn. I am much mistaken if every vinc has not its own idiosyncracy. It has its own peculiarities, peculiarities native to it, and upon a proper knowledge of these peculiarities, depends in an unlimited measure, our success in growing it. The same vine, as we all know, will not flourish equally well in all localities, and it is just as true that it will not flourish equally well in al aspects, in all soils, under all modes of culture, of manuring, pruning and protection. There are a few varieties less sensitive to external influences, and which seem to grow compara-

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tively well in every part of the state, in every soil, in almost any aspect and elevation. I allude to the Concord and the Clinton; and yet the difference in the quality, as well as in the size of the berry and bunch of these varieties, is surprisingly great, just as they are placed under more or less favorable circumstances. The vine—I might say every vine—has its own peculiar habits, and he who wishes to become a successful vinyardist should find out the right kind of soil, elevation, aspect and proper mode of culture for the vine he wants to grow. The experience of ages has proved the wisdom of this course in Europe, and our experience is proving that this is the right course to pursue in this country In connection with this, let us say, that our climate is teaching us a great and important lesson. Where some varieties of grapes, where peaches, plums and cherries, in their better varieties, could be grown fifteen or twenty years ago, now, they are seen no more. Therefore, in selecting places for grape growing, we should have an eye, not only to the past, but to the future injurious influences of climate.

This question of the influence of our northwest climate upon our fruit-growing, is one which, so far as I can judge, has not sufficiently engaged our attention. Not but that much attention and studious consideration have been given to it, but that it calls for still more thought, and because such thought will amply repay us. How to adapt our means, or what new means to adopt in our ever varying and extreme climate, is to us even to-day, a question of the first importance. So far as the grape is concerned, while I have seen no reason to cause me to change my method of pruning or growing—the two-arm system—I have found great reason to change my treatment in another respect, that is, in protection. I do not mean winter protection—this we all practice—but summer protection. A careful noting of the effects of summer protecting, as used by my friend, S. D. Carpenter, Esq, of this city, repeated consideration of his theory upon the subject, together with almost continuous drouth, led me to adopt his plan this last spring, and if it is fair to judge by one year's experiment, confirmed by his persistence in the same plan, then I may say that I have every reason to be satisfied with my experiment. The plan consists

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of mulching with straw or recent stable litter, (he used the former, I used the latter), to the depth of about two inches, the year throughout, and the theory is, as far as I endorse it, the keeping of the moisture in the soil—otherwise our summers are too dry. Mr. CARPENTER's though—it is only fair to state—covers more points than does mine, but the practice is the same. Under this treatment, I had much more and much better fruit than for the two preceding years, and much less disease among the vines. Premising deep cultivation, I know of no other means than that means of summer mulching, by which we can meet the comparative drouth from which we have been so long suffering.

There is another feature in our grape growing to which it is well, perhaps, to call attention. When I first began to experiment with grapes, and for some years aftewards, I used to claim for this vicinity an immunity from grape diseases, and from the insects injurious to the vine. The last four or five years have brought about a change in this respect. The vine now shows more tendency to disease, and the vine insects have become and are becoming rather familiar with us. How far climatic changes are concerned here, I do not pretend to judge, but it is very worthy of observation, that Mr. CARPENTER's vines have, under summer mulching, remained almost entirely free from disease and insect.

With regard to preference in varieties, of which it is always expected that something shall be said by him who speaks of grape growing, I can only reiterate what I have so many times and for many years repeated. For the ordinary grower, the Concord is my first choice; after the Concord, the Delaware, and then the Northern Muscadine. These three varieties have, with me, in spite of season, borne better, always borne, been freer from disease, freer from the depredations of insects, and have done better year by year than any three of the hundred varieties I have in my garden. For amateur growers, the varieties are too numerous to give here. I mean by this the varieties which are worth growing, and can be grown as easily, with care, as the Concord itself.

Mr. LAWRENCE was sorry to hear Dr. HOBBINS advocating

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such a slack mode of culture. A few years ago, MARK MILLER, of Iowa, wrote of the success of the Concord in grass. This was copied extensively by many of the papers over the country, and he was satisfied was doing much harm; at least, it would encourage shiftlessness. There certainly cannot be anything better than thorough culture for mulch, good appearance and health of vine.

The SECRETARY presented the following letter:

LAKE REST FARM, OSHKOSH, Jan. 23, 1873.

O. S. WILLEY, Esq., *Secretary of State Horticultural Society*,

Dear Sir: Being requested by the Oshkosh Horticultural Society, of which I am a member, to furnish an article for our State Horticultural Society, I have thought that possibly a leaf from my own experience as a grape grower might be of more value (and in better taste) than any theory I might urge.

The writer was one of the unfortunates whose lot it was to plant a vineyard, the fatal year of 1869. We all have cause to remember the cold, wet summer, the brief interval of warmth and sunshine, through September and the first of October, developing a late, succulent growth, on which came that memorable freeze, from the 15th to the 18th of October, when the thermometer fell to zero, the wind blowing a gale.

My loss on that occasion was fully 75 per cent. of vines planted, some varieties faring worse than others. I soon found that one element in the chances of life and death was the *depth of planting*. Following the directions of an eastern propagator, I set my vines very shallow. My directions were to "plant the depth you would furrow for corn."

I had scarcely finished planting before convinced of my blunder, and I set immediately about to remedy it; but scarce a beginning was made before the rain set in with such violence and steadiness as put an injunction on all working of the soil. Those taken up were reset to about the depth of eighteen inches, fairly down to the red clay. Though my resetting was done as late as the 1st of June, yet they mostly survived, and now are my strongest and most productive vines. My losses came mainly from the shallow-planted.

The following spring of 1870, receiving a fresh instalment of vines for replanting, I fonnd on inspection that they were so injuriously affected by the system adopted of forcing under glass—with concentrated manures—their roots appearing discolored, and in most instances tuberculated showing the material with which they were forced, that I thought it a loss of time and labor to set them in the vineyard. Finding a convenient spot for a nursery row, I had a furrow drawn as deep as the plow would make it, reaching down into our red clay,—in this I laid the vines closely

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together,—their roots placed all one way with the inclination of the land, plowed a furrow to them on each side, and with no other care or thought left them.

A few weeks later, seeing that nearly all had started, I gave them a hoeing, followed by another still later in the season. The vines made but a moderate growth of wood, though considered good under the circumstances. The foliage was healthy. Wood ripening well.

But it was not till the spring following, that I made my discovery. Having promised a few to a friend, (HENRY FLOYD, ESQ., of Berlin, Wis.) he, accompanied by JOSEPH H. OSBORNE, ESQ., president of our horticultural society, came for the promised vines, and not having enough of others, I was compelled to take some of these. Now came my discovery. We were astonished to see the transformation wrought by one season in those roots. Those rough, discolored, tuberculated, horse hair-like appendages, had vanished, and in their stead were masses of roots—smooth, clean, bright as the yellow gold—invariably reaching downward, either at an angle, or, as was often the case, almost perpendicularly down into the red clay. The main roots were nearly as thick as the finger, and had reached out and penetrated downward to an astonishing breadth and depth. As before stated the amount of wood made seemed moderate; the energies of each vine seemed directed upon establishing a new order of things at its roots, and with evident success. A few of these vines were sent to a friend in Chicago, who pronounced them the finest rooted vines he ever saw.

The strongest and most valued vines in my vineyard were from this nursery row. The variety alluded to is the Walter, now one of our standard varieties, placed either at the head of the list or among the first by all our leading cultivators in *this* section—standing, as it does, the severe and varied tests of cold and wet, heat, drought and freezing, as well as any variety here cultivated. I make this statement with the more confidence from the fact that the worthy Secretary of our State Horticultural Society, O. S. WILLEY, visited the vineyard of the writer, noted carefully the growth made, and the character of wood and foliage, during our northern fair of October, 1871. With this variety as of others of the 1,600 vines set in the spring of 1869, my losses were almost exclusively of the shallow planted. My best results came from planting deep.

My own views of the value of deep planting and the congeniality of our red clay, with its mingling of pebbly limestone, finds confirmation in the experience of my friend Osborne, who, noticing that an Iona vine, which for several seasons had languished, had finally taken a start, and was sending up a vigorous growth, on examination found that all the old roots, lying near the surface were dead, and but apparently one root remained. This was of bright yellow, and as he carefully traced its course with his finger, it apparently went straight down into the red clay. Those set in the rich mold above had perished. This one root, reaching

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down deep into the clay had become the one source and citadel of growth and life. And now while the hopes of the grape grower are giving way before the fearful drouth of the past two years, and the intense cold of the winter, my hopes still center in those deep planted vines, rooted strongly in the red clay.

JOHN P. ROE.

Adjourned to 2 P. M.

WEDNESDAY, P. M.

The committee of conference with the State Agricultural Society, reported as follows:

The committee of conference with the State Agricultural Society, beg leave to report that they have discharged their duty, and have received from them the following proposition: That they agree to the same terms as offered last year (1872) viz: an appropriation of $800 for premiums—they defraying all other expenses.

F. S. LAWRENCE, *Chairman*,
C. H. GREENMAN,
CHAS. WATERS.

The proposition was accepted and the committee were instructed to so report to the State Agricultural Society, with the thanks of the State Horticultural Society for their very magnanimous offer.

Next in order was a paper on

HOW MANY AND WHAT VARIETIES SHALL WE CULTIVATE?

BY G. J. KELLOGG, JANESVILLE.

Mr. President:—Can you tell? I cannot, our best authority Downing gives us in his revised edition 3361 names and synonyms of apples; and the U. S. Department of Agriculture at Washington, is now disseminating 988 varieties of apples from Russia. Who is sufficient to test all these? When shall we find the wheat in this pile of chaff?

How many thousands of dollars have been spent in Wisconsin testing varieties, and how little do we know at the present time? Much less than we thought we did years ago.

There are some enthusiastic horticulturists, even after the bit-

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ter experience of the past, still planting largely of the new and old varieties to test their adaptation.

Who but a Skinner would think of planting in an orchard, two trees of every variety of plums found in the United States?

Who but a Peffer would be adequate to test the seedlings of Wisconsin, thought to be worthy? Who is there that will test the 988 varieties imported from Russia? And where shall we find the varieties that will satisfy the wants of the west, as the Rhode Island Greening, Roxbury Russet, Spitzenburg and Baldwin do the east? Where can we find the apple that is adapted to the northwest to take the place of the Rhode Island Greening? We have hope that it is found in the Pewaukee.

What do we want of more than ten varieties of apples, even if our secretary does recommend twenty?

Have you had experience in picking and marketing twenty varieties? Would not five suit you better? True, our society recommend twenty-five varieties to select from, but few of which would be profitable for market, and only about one-half for family use.

Our country and markets are burdened with fall apples.

In our last report of this society, I find 273 varieties of apples as a partial list of fruits grown in Wisconsin. All this may be well; it may lead us to select lists. Let us cut down until we can agree upon ten varieties to which no one shall object. Let the highest premiums be given for those ten varieties.

It seems a mistake to offer the highest premiums for the greatest number of varieties, when nine-tenths of them are unworthy of general cultivation. Only a year or two since, one of our most enthusiastic fruit-growers stated that he would increase his list till he exhibited two hundred varieties. He had better top-work and decrease till he has only ten in his orchard of one thousand trees. Our commercial lists ought to be revised.

It may not be practicable to make a list that is adapted all over the state. The lake shore and the north can grow varieties that will freeze to death on the prairies. Men of practical experience will not follow our advice unless it suits them, but the masses should be cautioned against multiplying varieties in planting large orchards.

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We would not disccurage the zeal that is bringing to light new seedlings ot great promise; we need a few more PEWAUKEES and a few more PEFFERS.

We would respectfully recommend a list of ten varieties for general cultivation, viz: Red Astrachan, Duchess of Oldenburg, St. Lawrence, Fameuse, Tallman Sweet, Golden Russet, Pewaukee, Ben Davis, Westfield Seek-no-further and Willow Twig. And for a commercial list: Red Astrachan, Fameuse, Pewaukee, Walbridge and Ben Davis.

THE PEAR

Is only adapted to certain clayish soils, and is proving a failure everywhere else in the state. I verily believe, to sum up the millions invested in pear culture in our state that every well grown specimen has cost five dollars each.

The list of names of pears given us is 2,788, but, out of them all, what can we recommend beside Flemish Beauty, and who will give us a remedy for blight?

PLUMS.

Eight hundred and thirty-five names for plums, and I know of but one variety that is entirely exempt from the attacks of the curculio; that one is ahead of the Hinkley, and it is the J. C. Vanity.

If any one is getting rich, growing plums, we would like to visit his orchard. No device can save the crop except the jarring process; for a list, we would respectfully call on friend Peffer.

What shall we say about peaches? 491 varieties may be grown just across lake Michigan, but let no one try many in Wisconsin. A few may succeed along the lake shore. I have bought Wisconsin grown peaches at one dollar per bushel, but not this winter.

GRAPES.

What has not been said, written and cultivated? Is this grape mania subsiding? Is there danger to our country in the cultivation of the vine? There ought not to be, with one of the

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best, most healthful and long keeping fruits, not excepting the apple. As the supply increases, so does the demand for this fruit among all classes. With grapes at five cents per pound, they are in reach of every household for daily use, for three months of the year. But what about the 649 varieties and as many more that soon will appear; for every vine grower and almost every horticulturist has a pet seedling, demanding pre-eminence for its wonderful qualities.

In this stage of the proceedings, it may not be possible to simmer down to a recommended list. Many varieties have been tried to our sorrow—nine failures to one success, and in about the same proportion will be our future with the new varieties.

The present demand is for a grape that has earliness, hardiness, productiveness, adaptation, quality, and that will keep till mid winter.

The nearest to this, as yet, is the Delaware. How it may be best kept is a matter of more importance in considering the grape question than all others, for if we can keep our crop till the flush of the season is over, we may realize far better prices.

The Concord still stands at the head as the grape for the million; there is nothing so satisfactory, which has been so widely tested, and if it only had the keeping qualities it would be hard to find its eqnal.

Here let me digress and give you the success of a small vineyard of Concords, owned by SAMUEL LEWIS, ESQ., of Lake Mills, Wis. Situation of the vineyard on the eastern slope of this low, dividing ridge east of the lake. Soil—rich alluvial loam, subsoil, clay. A good dressing of stable manure was plowed in —ground was plowed in small lands 10 feet wide, making as deep a dead furrow as possible, then backset twice upon the ridge, setting the vines about 6 inches below the surface, 6 feet apart by 10 feet in the rows, trained to stakes, one, two, or three, as the vine required. Three hundred and fifty-one two year transplanted vines, set in 1869, covering little over one-half an acre.

The season, after planting, all the fruit was picked off except on one row, which bore from ten to fifteen bunches each, and since then has produced equally well with the rest of the vineyard.

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In 1871, the vines bore on an average, by weight, fifteen pounds per vine—2,268 pounds; at five cents, $262.25.

Second crop grown, 1872, averaging twenty pounds to the vine, at five cents—$1 per vine. Not a pound of these grapes, as far as I know, has ever been made into wine.

Whether the past season has been an exception in keeping the grape, I cannot tell; but with me the Concord, stored in twenty-pound boxes, kept till the 8th of November, selling to dealers at that time at 10 to 12½c per pound, with a loss of not more than five per cent. from the vine.

Mr. PRESIDENT, with all the cuffs and hard knocks the Concord gets, it should stand at the head of the lists for general cultivation.

Among the many seedlings of this grape demanding our attention, is the *Worden*, originating in a more northern climate, and in every way surpassing its parent, except its keeping qualities, which are about the same. This variety was introduced into Wisconsin by SAMUEL LEWIS, of Lake Mills, six years ago, and has proven perfectly satisfactory and all that can be wished for except the keeping qualities.

I am still further convinced that we cannot go too slow in adding to our recommended list of grapes for general cultivation.

STRAWBERRIES.

What shall we say of the king of small fruits, the strawberry? Of the 412 varieties, only one—the Wilson—is in general cultivation and succeeds everywhere.

Each year ought to give us new lights and some new, worthy additions to our lists of small fruits. Other lists I leave to your consideration.

Trial, success and failure will lead us by slow and rugged paths up the horticultural hill, till our labors are crowned with success, and the golden harvests shall be given to the masses—producing health, happiness and a kind word of remembrance to the memories of the pioneers in horticulture.

Mr. LAWRENCE moved, that for the purpose of expediting business, the revision of the fruit list be referred to a committee of

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five, which was carried, and the chair appointed Messrs. A. G. TUTTLE, J. C. PLUMB, G. J. KELLOGG, W. M. BARTHOLOMEW and G. P. PEFFER, as such committee.

This committee retired, and a paper was read on the

PROPAGATION OF THE CHERRY,

BY H. M. THOMPSON, ST. FRANCIS.

Throughout the states west of lake Michigan, the impression appears to generally prevail, that the finer varieties of cherries cannot be successfully grown. The cause of failure has usually been attributed to the peculiar climatic influences which render the late winter and early spring months so variable in temperature. These sudden atmospheric changes do not appear to materially affect the vitality of the Kentish or Morello class of cherries, but owing to the fast growing habits and the spongy texture of the bark and wood, characteristic of the Heart and Bigarreau classes, they are not sufficiently compact in structure to enable them to resist the alternate expansion and contraction enduced by extremes of cold and heat. In elucidating this theory, BAKER says, "that late in autumn and early winter the tree is not easily stimulated, and a severe frost, even after a warm season, does not necessarily injure the tree, but late in the winter and in early spring, when the energies of the tree are active, a frost is injurious, and if the buds are swollen, or the tree in leaf, it is disatrous, possibly fatal in consequence of expansion by congelation, thawing takes place, and the sap runs out among the intercellular spaces, destroying the whole circulation."

DE VRICSE, in his principles of vegetable physiology expresses a similar opinion. That the cherry tree is a native of a warmer climate is evident from the fact that their buds have not the same protection from extreme cold as the buds of the apple. American mountain ash, and many other varieties of trees, the scales of the buds of which are incrusted with a pubescence, which renders them less sensitive to the influences of moisture and heat, hence owing to the difference of construction in the buds, and the larger sap vessels of the Heart and Bigarreau

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classes of cherries, the sap and buds are excited into earlier activity by the moisture and heat of warm days in late winter and early spring, than if they were a natural habitant of the northern part of the temperate zone.

The ascending sap vessels of the cherry tree being large, must contain a quantity of nutriment, in proportion to their size, which vary according to the species, from $\frac{1}{80}$ to $\frac{1}{1000}$ of an inch in diameter; these ducts are the winter store houses of mucilaginous fluid, for the purpose of supplying the dormant buds with nutrition, which may be excited into premature activity by a warm temperature, even when the earth is in a frozen condition, the activity and force of the ascending fluid being in proportion to the source of supply, quantity, and degree of atmospheric warmth, then after a few days of sunshine in February and March, the sap has started into active circulation, the dormant bud is aroused, when a sudden lowering of temperature, many degrees below the freezing point occurs, arresting the flow of and congealing the sap, the vessels having already been filled to repletion, the woody fibre surrounding the ducts, because of its thinness and spongy nature, has not sufficient strength to resist the lateral pressure occasioned by expansion in consequence of congelation; hence in spring it is found that sap, and at a later period in the season, gum exudes from one or more portions of the body of the tree; such injury by reason of the greater warmth of one portion, caused by the more direct action of solar heat, is located upon the south and southwest sides of the tree.

That the sap may be in active circulation on one side of the tree, while the contrary side may be frozen and its energies in a dormant condition, is evident from the fact that in spring an incision may be made in the northern side of the sugar maple, from which little or no sap will exude, while an incision upon the reverse side of the tree will result in a bountiful flow of sap. That the injury resulting from this unequal circulation, and congelation of sap is permanent is owing to the fact that wounds upon the cherry, as well as plum and peach trees, do not readily heal, either by natural or artificial means, is on account of the bark curling outwardly, and the exuding of the gum, hence

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early decay and a shortened existence, because the tree is no longer able to properly perform its natural functions.

Having examined some of the causes of the premature decay of the cherry tree, let a cursory reference be made to the efforts of horticulturists, in experimenting and making additions to the hardy list of apples, from which, a person wishing to plant a market orchard of a hundred or a thousand trees, may select ten or twelve varieties that are adapted to his locality, and prove profitable. While the amateur who grows fruit for the pleasure derived from seeing, exhibiting and eating the products of his own culture, may make selections of a greater number of sorts deemed promising, some of which may prove hardy and worthy of general culture.

The additions which have been made to our list of Siberians, being noted for improvement in size, color, flavor, and keeping qualities far superior to the current crab of only a few years since, seems to indicate that a series of hybridizing may eventually result in sorts having the characteristic hardiness, fruitfulness, high color and rich saccharine juice of the crab, combined with the much larger size, eating and long keeping qualities of the best varieties of winter apples.

Reference may also be made to the twenty years of persistent efforts in grape hybridizing, which have resulted in some valuable sorts, comparing favorably in quality with some of the best foreign varieties; some of them adapted to general cultivation, others suitable to particular soils and locations.

The accidental or artificial hybridizing of the smaller fruits, more especially raspberries and strawberries, has caused the introduction of hundreds of sorts which are either entirely worthless or only valuable in particular localities, or perhaps an acquisition to the amateur who delights in a multiplicity of sorts, or which in the hands of the experimentalist may prove the foundation from which may be originated sorts of superior excellence, in points of firmness, productiveness, hardiness and general adaptability to soil and climate, and superior in quality to the Wilson strawberry and Philadelphia raspberry.

The present and prospective beneficial results derivable from the efforts which have been made in the direction referred to, leads

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to the inquiry as to what experiments have been made to originate a sort of cherry possessing the firmness of flesh and edible qualities of the Yellow Spanish or Holland Bigarreau, or with the rich tender flesh of the Hearts, or the juicy, melting flesh and tender skin of the Duke class, combined with the hardiness of the Morello, Kentish or Early Richmond. Are there any accidental seedlings in cultivation, or have Messrs. KNIGHT, ELLIOTT, or Dr. KIRTLAND originated any sorts that possess a combination of these qualities, prolific, and adapted to all soils and locations? If not, we have a good foundation to build upon, by hybridizing some of the best varieties of the Dukes, Hearts and Bigarreaus for quality, with the Morello and Kentish or Early Richmond for hardiness.

In making the experiment, the first obstacle to be met with will be, that there are several days difference in their respective periods of blooming, the first named sorts blossoming several days earlier than those last mentioned. This difficulty can be obviated in the two ways suggested by MR. PEFFER, Transactions Wisconsin State Horticultural Society, page 58, and by screening the early blooming trees by means of any artificial protection, which will keep the buds and sap in a dormant condition, until near the time that the pollen may be required for the purpose of hybridizing.

As it will necessarily take several years to bring any experiments in this direction to a successful termination, would it not be well to ascertain whether, while these efforts are being made, if there may be some other means employed, which will enable us to produce, with a tolerable degree of certainty, such desirable and luscious fruits?

So far as my observation extends, the major number of the cherry trees introduced into the west have been of the Bigarreau class; these are much more thrifty and luxuriant in growth than the Hearts, and still more rapid in growth than the Duke class, hence more tender and more liable to bark-bursting. No doubt the two latter classes are too tender for our severe climate as ordinarily propagated, planted and cultivated on our new western soils, which are so rich in vegetable mold, that combined with ordinary to good cultivation, stimulating the natural ten-

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dency of fast growth, to greater exertions, thereby defeating all prospects of success, which, under more favorable conditions, and with proper treatment, might produce favorable results.

That there is a certain original cause which renders a particular fruit tree, plant or shrub hardy in its own specific climatic zone, is a well known fact, although we are in a great measure left to the chances of theorizing and speculation, as to the principle on which such innate hardiness is founded. Facts teach us that under certain conditions, this element may be modified to such an extent that certain plants may be grown several degrees north of their climatic zone, or in other words, they may be acclimated to a limited extent, to a point further north than the natural habitant of the species; this result is more likely to ensue with those plants and trees that are in a state of variation from their original wild type, by the replanting of seeds, and by a series of removals northwardly for a number of years, thus causing the tree or plant to gradually accommodate itself to the new influences with which it is brought in contact.

Four other methods may be named, which separately or combined may accomplish the desired result: 1st, by partially uncovering the roots in early autumn; 2d, by root pruning; 3d, by pinching or shortening the current season's growth in early autumn; 4th, by top-working; the object of the first three methods being to ripen the wood sufficiently early in the fall, so that the proper degree of firmness may be imparted, that will enable the tree to endure the changeable temperature of late winter and early spring.

Some intelligent and successful horticulturists claim that the desired result may be accomplished by top-working any half hardy sort upon another known, hardy, closely allied species. This method will probably most successfully apply to any tender sort that is more particularly liable to injury in the body than in the top. This induces the consideration of some of the causes which have led to the adoption of this theory.

Whatever influence the bud or graft may have upon the fruit, the attention of the close observer is naturally invited to the fact that, though the bud or graft be of a stronger growing species than the stock upon which it is worked, that it will be of

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slower growth than if on its own root or on a fast growing stock. As an illustration of this influence, reference may be made to two Imperial Gage plum trees planted in my orchard, which are of the same age, one of them worked upon the fast growing Horse plum, which measures 5⅞ inches in diameter, the other one being worked upon the slow growing Frost Gage, measur- 2⅝ inches in diameter, making a difference of 3¼ inches in the diameter of growth. Many other instances might be cited, proving that the principle will apply not to one species or class only, but, as a general rule, will apply to the different species of fruit and deciduous ornamental trees, upon which I have experimented, and to others which have come under my observation. It may be especially noted that hardy varieties of wild or cultivated fruit trees are dwarfish in their habits.

As instances in corroboration of this, reference may be made to the different species of hawthorns, the wild and cultivated crabs, Frost Gage plums, to the Kentish and Morello cherries, and many varieties of apples that are noted for producing fruit at an early age, and for being very slow growers. Some of these species may be fast growers when young, but these almost invariably become dwarfish in their habits of growth after coming into bearing, although modified in a considerable degree when worked upon fast growing stocks; this habit, which is established and so inherent in so many sorts, that they are justly entitled to, and should be classed as natural dwarfs.

This slow growing tendency must impart a constitutional hardihood, which enables them to flourish in higher northern limits than those species which are naturally life-long fast growers; this is founded upon the established principle of vegetable physiology, that a species must adapt itself to the climate in which it grows, otherwise it must perish; thus a species of tree, growing to a large size and great height, may be found at the base of mountains, while at a greater altitude they will diminish in these respects. Advance a little higher, and a species of slower growth appears and, as the altitude increases, the trees become stunted in growth, and finally, altogether disappear, being no longer able to contend with the elements of eternal frost; hence it is to be concluded that the slower growth of the species

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in a state of removal to higher altitudes, or many degrees northwardly, is one of nature's efforts to harden and adapt it to sustain the rigors of its new location. This is a hint which nature kindly furnishes, reminding us that in removing a species north of its natural limits, success will be most likely to result with those varieties which are natural dwarfs, and that if the more tender sorts are grown with a view to immediate practical results, then the natural dwarf stocks must be used for top working.

In case the foregoing is correct, and if the Spitzenberg, Rhode Island Greening, Early Harvest and other tender sorts of apples can be successfully grown by top working on slow growing hardier stocks, why may not the same principle be applied to the propagation of the Duke, Heart and Bigarreau cherries by being top worked upon the Kentish or Morello, these sorts being noted for their slow growing, dwarfish habits, and for their extreme hardiness; thus propogated, the fast growing, tender varieties will naturally, to a certain extent, partake of the slow growing nature and hardiness of the stock, because the small sap vessels of the stock have not the capacity for transmitting the same quantity of mucilaginous nutriment that the top would require if on its own root, or on mazard stock. In proof of this, it may be stated that there are in my orchard three trees of Holland and Napoleon Bigarreau, top worked on Kentish 14 years ago, which are sound and healthy. The measurement of these top worked trees, one of the number being worked on two side branches, is as follows:

1st tree, first limb, above the junction, diameter 4 inches; below the junction, diameter 3⅛ inches; 1st tree, second limb, above the junction, diameter 2⅜ inches; below the junction, diameter 2¼ inches; 2d tree, above the junction, diameter 5½ inches; below the junction, diameter 4 13/16 inches; 3d tree, above the junction, diameter 4 19/16 inches; below the junction, diameter 4 7/16 inches.

The diameter of four Heart cherries at the same height from the ground, are respectively 10, 7 15/16, 9 and 11½ inches. These trees have been in grass most of the time, and are of slower growth than the Bigarreaus, so that on comparison of the difference in growth with those that were top worked, the in-

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fluence of the stock is apparent, and may be accepted as conclusive in regard to this particular species.

In top working upon the Kentish, in order to partially or wholly obviate their tendency to sucker, seedling stocks are preferable; these are liable to be thrown out of the ground by frost, hence they should be protected the first winter, and as they make a very slow growth, it usually requires four or five years to make strong stocks high enough for working, and on account of the difficulty of the buds taking, they should be in a very thrifty, growing condition, with considerable moisture in the ground and atmosphere; with these and the other necessary conditions, my loss of buds has not usually exceeded fifteen per cent.

Many of the Dukes and Hearts may be worked just high enough above ground, so that they will not take root from the bud or graft. When worked in this manner, the heads of the trees should be as low as they can be formed. I have several Dukes and Hearts, mostly May Duke and Early White Heart, which were planted 16 years ago in a poor, light, sandy soil, with little and most of the time no cultivation, which are sound otherwise, than some injury, which has resulted from the pruning of some of the lower branches of an inch and a half and two inches in diameter. Gum exudes from these wounds, and though made some years ago, they have not healed. These trees have been in fruit and yielded well, with but two failures in the twelve years in which they have been in bearing.

These observations and experiments have led me to the conclusion that the finer sorts of cherry, top-worked upon Kentish, and perhaps on the Morello, can be successfully grown on high, dry, thin soil, with a northern aspect, or a similar soil, the location descending to the south, by mulching for the purpose of keeping the blossom buds in a dormant condition until they will no longer be endangered by late spring frost, with the further precaution that the orchard should be seeded to grass.

Upon the proper fulfillment of these conditions, which are deemed absolutely essential to insure success, we may look for an enlargement of our list of small fruits, which will partially satisfy our tastes and requirements until such times as the hy-

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bridizing experimentalist shall accomplish more desirable results.

Mr. WOODWARD. The early Richmond cherry, in Marengo, has been a perfect success. Fruit sells well in market; as a fruit for the dealers, it pays better than apples. In answer to question, he said, the tree will stand uninjured thirty to thirty-five degrees of cold below zero. Trees are always healthy and seldom fail of producing a full crop. Had seen some trees in this state that are just as promising as those referred to in Illinois. Never knew them injured by the cold. Had examined trees within a few days, but could not see any injurious effects from the winter.

Mr. HOILE. Specially interested in the culture of the cherry. Finds it very satisfactory. Thinks the Early Richmond will endure any amount of cold. Spoke of an orchard where there was raised a large amount of fruit, and where thirty degrees below zero was not noticed by the trees. Is satisfied there is more money in raising cherries than strawberries, and thinks they will always command three dollars per bushel.

DANIELS, of Green Lake. Have had the Early Richmond cherry for a number of years, and have not seen any damage done by the cold. Cultivate for two years after planting, then seed down. The birds, at present, take most of the fruit, but expect soon to have enough for myself and birds too. Thus far the trees prove to be perfectly hardy.

Mr. THOMPSON. No trouble in growing the Morello and Kentish varieties. Had seen them at St. Paul, and never saw any winter killing. Would like to know something about the Kentish for a stock to graft the more tender sorts on. Birds help to raise fruit, for they take off many insects that are injurious to other things. We must learn to compromise.

In answer to a question as to the Leib cherry, Mr. WOODARD said: In southern Illinois he had understood it to have been a failure, as lacking in bearing qualities.

Mr. EMMONS. The Kentish does well, in his vicinity. Several orchards are doing well, and making good returns. Known the trees for years, and they always have a full crop.

The PRESIDENT, in answer to question, said: Prefers a clay

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soil. The only difference between Richmond and Kentish is in the time of ripening. The former is about one week the earliest, and a little more juicy.

The SECRETARY presented a paper, which was read.

HOW TO MAKE FRUIT-GROWING A SUCCESS.

BY EDWIN NYE, OF FREEDOM.

To succeed as a fruit culturist, as in any other calling, requires a thorough devotion and love for the business. Make it a hobby if you will. Study to learn, and practice what you have learned, having common sense for your guide. When you have planted a tree, don't stop there, but nurse and feed, protect and watch over it, as carefully as you would a choice calf or lamb. If it sickens and dies, don't become discouraged and say you cannot raise fruits, but plant another, and, profiting by past experience, try again, and keep trying. In buying trees, buy from a reliable nurseryman, and be sure to select young, thrifty trees; you had better pay a dollar for a first-class, well grown tree, than to have a poor one given to you. It is a good plan, if you can, to have a small nursery of your own, planting your own seeds and doing your own grafting and budding, testing old varieties and new, and even raising new varieties of your own, if you have the patience. By doing so you will save the trouble and expense of sending to a nursery every time you want to set a few trees. And you ought not to let a season pass without setting trees more or less.

When I was a boy, and eat apples (I could eat apples then and can yet), my mother used to tell me to save all the seeds, and plant them. I did so, and now I can hardly eat a good apple without saving the seeds. Every spring finds me with a box of seeds, ready for planting. I have several quite promising, bearing seedlings, as the partial result of those plantings.

A few words about varieties. I have not so much faith in special lists of iron-clads, as many have. I believe that with good care and culture, a man may be equally sure of success with a list of varieties selected to suit his own taste or fancy

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from a descriptive catalogue of any well-conducted nursery, as he will to confine his selections to special lists of iron-clads. The main thing is to start with healthy, well-grown trees. Ten years ago, I set a row of six trees on one side of my garden, one each of Northern Spy, Tallman Sweet, Twenty Ounce, Rawles' Jannet, Peck's Pleasant and Seek-no-further. The only tree left of that row is the Northern Spy. The next year I set Golden Russet, Yellow Bellflower, Northern Spy, Tallman Sweet, Seek-no-further, Fameuse and St. Lawrence, the three last named are alive and healthy, the others are all dead; they all received the same care and culture. Another year I had a fine nursery row of transcendent crab trees, all killed by the bark bursting at the collar. Still, I have all these varieties, planted in other years, growing and doing well. Last spring I found among my two-year old nursery trees, the Tallman Sweet and Fameuse, badly injured, while trees of other and more tender varieties, of the same age and under the same circumstances, were uninjured.

I cite these records to show, if they show anything, that success or failure does not depend upon varieties. Upon what, then, does success depend? I will answer, that it depends upon careful, patient study, thorough, persevering labor under difficulties, and a natnral aptitude and love for the business. It is not to be supposed, or even desired, that all men should become successful fruit-growers, any more than that they should all become blacksmiths or merchants.

Every one to his calling; and to make that calling sure, we need not only to work, but to read and think; reading horticultural books and papers, and attending horticultural meetings. Remembering at the same time that there are quacks in horticulture as well as in other callings, and that we must separate the wheat from the chaff. For instance when "western trees for the west" are recommended, let us buy the best we can get, no matter where they are raised. From what nurseries were the trees in our oldest and best orchards obtained? Again, if we are advised to "set trees with the tap-root well preserved," just consider whether we want to "dig holes" three feet deep to run the tap-roots of our trees into. (We might if we had post augers.) I should much prefer a tree with fine spreading

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roots near the surface. Some prefer to top-graft on seedling stocks, four or five years old. Experience teaches that in cutting the top from so large a tree, the stock is very apt to become black-hearted and worthless. If I wished to raise perfect trees I should select strong one-year-old seedlings, and graft at the collar, cutting the tap-root at the same time.

Others say that we should follow nature, in the management of our trees. Let us see. Take that wild crab tree which has sprung up in the fence corner; it is of nature's own planting, and its fruit will be nature's fruit, "wild crabs." The moment we begin to prune, and graft, we interfere with nature, and whatever results we obtain, are those of art and culture, rather than of nature. Have we improved on nature? if so, why not continue to do so. The fact is, nature is a very good mother, but her children need culture and training in order to obtain the most perfect results.

You will doubtless be told at this meeting, and have already been told at others, "how to plant," "what to plant," and "when to plant." So I will leave that part of the subject for others more experienced than I. Only let us work that our practice may keep pace with our precepts.

Mr. Bartlett would like to know something about planting trees. Spoke of a mode he had known practiced, by digging large and deep holes, filling nearly up with stone. In wet weather it gave good drainage, and in a drouth the stones were always damp, and sustained the tree.

Daniels would always have trees a little above the surface. This will cause the water to drain off, and prevent injury. Had practiced putting stone under the trees as described, and found it very satisfactory.

The committee on

FRUIT LIST,

Report three classes or divisions, viz:

1st. General List.
2d. Commercial List.
3d. Amateur List.

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The report was adopted. The lists, as reported, being under consideration, Mr. FELCH objected to the Seek-no-further; in quality it is inferior, and tree is poor.

TUTTLE would be very sorry to see it stricken from the list. It is about the only eastern sort we have left. Fruit *eats well* at his home. Tree is good, if well cultivated, but will not stand in grass.

WATERS. Does not do well with him. His trees are in grass, but are as thrifty as any he had seen; soil rather low prairie, but can see little difference with it on the ridges.

SMITH, J. M. Had a friend who grows it to perfection on high timbered soil, and it does well.

DANIELS. Thinks it is doing well in his county. Sure it is a success with him.

PRESIDENT. Tree a little tender while young; but, with age, it is all right, and the fruit is indispensable in his family.

Mr. SCHUYLER, of Chicago. Has seen as fair fruit of this variety in Wisconsin and Iowa as he ever saw in Michigan. Fruit is good and fair, and as profitable as any in cultivation.

Seek-no-further was retained on the list.

Mr. FELCH objects to the Willow Twig. Saw it in many localities, and finds it does sometimes injure.

THOMPSON finds this to be the case on the Twigs in the nursery, and insects are very much attached to it; grows slow; no trees in bearing, though nine years planted.

WOODARD.—It is one of those sorts that is hard on the nurseryman, but all right in the orchard.

TUTTLE, agrees with Mr. WOODARD. Twig sometimes mildew, but bears well in the orchard; thinks very much of it.

KELLOGG.—This list was not made for the nurseryman, but for the orchard.

THOMPSON, would like to see the Northern Spy substituted in place, and moved that it be so done. Motion was lost, and Willow Twig was retained.

FELCH, objected to the Pewaukee; thought that the amount of experience that had been had of this variety, could all be counted up by enumerating four or five nurserymen, and this he thought was quite too limited.

Mr. TUTTLE, had no doubt of its hardiness, and abundant

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bearing qualities, and was confident that it will fill the place of the Rhode Island Greening of New York, for winter, to follow in use the Fameuse.

PEFFER.—From reports in this state and Minnesota, it has given satisfaction.

PRESIDENT, ten days ago cut side branches from trees, when mercury had been down 26 degrees below zero, and found them all right. On the cions cut and referred to, thought the terminal bud would grow.

Pewaukee was retained on the list.

Mr. FELCH moved the committee report a list of five for hardiness, for extreme northern climate. Carried.

Mr. SMITH knew Tallman Sweet twenty-five years old, and they are considered the best in the orchard. Knew as much as 25 bushels to be taken from a tree. DANIELS has said that he could afford to raise Tallman Sweet at fifty cents eaiser than other sorts at one dollar per bushel.

PRESIDENT: No market for the fruit is *the* objection. TUTTLE formerly thought it valuable, but with age, was satisfied that it was not. Had 40 or 50 barrels but no market. Cannot sell them. This is the objection.

Committee reported that for any one who can afford to work on Duchess, the Northern Spy and Jonathan will be found very satisfactory. Mr. KELLOGG moved that Ben Davis be added to the list for general cultivation.

THE LISTS OF APPLES,

As agreed upon after the above discussion were :

GENERAL LIST.

1. Red Astrachan.
2. Duchess of Oldenburg.
3. St. Lawrence.
4. Utter.
5. Fameuse.
6. Plumb's Cider.
7. Seek no Further.
8. Tallman Sweet.
9. Golden Russet.
10. Willow Twig.
11. Ben Davis.

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COMMERCIAL.

1. Red Astrachan.
2. Utters.
3. Fameuse.
4. Pewaukee.
5. Ben Davis.
6. Walbridge.
7. Willow Twig.

AMATEUR.

1. Tetofsky.
2. Early Joe.
3. Sweet June.
4. Sops of Wine.
5. Saxton.
6. Autumn Strawberry.
7. Fall Orange.
8. Fall Wine Sap.
9. Blue Pearmain.
10. Rawles Janet.

BEST SIX—FOR GARDENERS.

1. Tetofsky.
2. Duchess.
3. Haas.
4. Fameuse.
5. Plumb's Cider.
6. Ben Davis.

DISCUSSION ON PEARS.

J. M. SMITH spoke in high terms of the Onondaga. Several times during the past few years this variety has borne very full crops. The Bartlett was loaded to excess, so much so that it became necessary to remove a large amount of the fruit. A neighbor has trees six years set, and he never saw finer trees, bore well formerly, but of late had not done so well. These trees were kept in a high state of cultivation. The Onondaga was very remunerative for two crops and the third crop promised well when it was taken by the blight.

PRESIDENT remarked that this was a valuable point. That though we lost a tree or two now and then, yet if we got two or three crops of fruit from them we were yet ahead.

LAWRENCE could mention a number of instances where pears were entirely successful. Knew several trees that were always loaded. Did not like to have it said cannot raise pears. The same had been said in regard to apples, and we have proven it to the contrary, and we will yet do so on the pear question.

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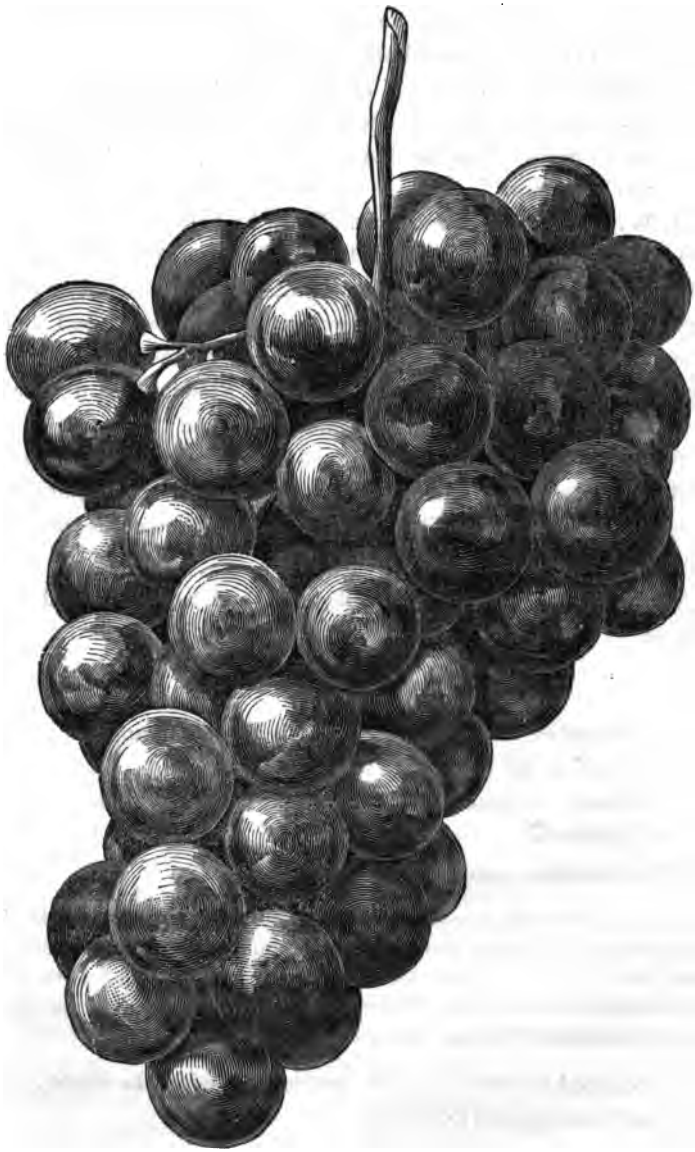

Rogers' No. 9, Lindley.

Raised by E. S. Rogers. "Vine vigorous, very productive; bunch medium, rather long, compact; berry medium, roundish, red or reddish; flesh juicy, sweet, slightly aromatic; Ripens a little before Concord."

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ROBERTS said his first planting was a failure, but this experience was of much value. Seven years ago he set another orchard, and thus far it had been a success.

In answer to question. If any one had done their whole duty towards the pear, Mr. KELLOGG said he had. Would admit that there were cases of reasonable success, but as a whole, pear culture was a failure.

J. W. PARKS was called for and said he had set a good many trees. In 1863, planted about 1,200. These grew very well till killed by the cold. Have since planted more. Always plant trees on pear stock. The last two years have lost a good many from the blight. Trees of late have been in the grass mostly; considers the best in the order named: Flemish Beauty, Bartlett, Louise Bonne de Jersey, Belle Lucrative.

SCHUYLER, of Chicago, could see no difference in Wisconsin and other states. The complaint is every where the same, that blight kills the trees. This appears to be the trouble, and not degrees of cold.

The following list was agreed upon and recommended as a list of

PEARS FOR TRIAL:

1. Flemish Beauty.
2. Ananas de Etta.
3. Early Bergamot.
4. Bartlett.
5. Swan's Orange.
6. Seckel.
7. Winter Nellis.

The following resolution was adopted:

Resolved, That we recommennd the planting of pears upon high, airy locations in well drained soils of only medium richness, or those decidedly lean, with culture enough to secure a fair but not excessive growth. That if soils are excessively rich, their growth should be checked by root pruning in the summer or grassing the surface adjacent.

Adjourned to meet in joint convention with the State Agricultural Society, at 7½ o'clock.

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ASSEMBLY CHAMBER, 7½ P. M.

At a joint convention of the two societies, held in the Assembly room, President TAYLOR, of the State Agricultural Society, and President STICKNEY, of the Horticultural Society presided.

The opening address was delivered by Professor W. W. DANIELLS, of the State University, on the part of the Agricultural Society. This address was listened to with marked attention.

President STICKNEY then introduced General FALLOWS, Superintendent of Public Instruction, who spoke as follows

ON THE STUDY OF THE NATURAL SCIENCES IN THE COMMON SCHOOL.

A young school teacher some years ago, who has since risen to the highest executive position in an eastern state, was asked the difference between agriculture and horticulture. Not having a dictionary by his side to consult, he replied "agriculture is farming carried on with oxen and horticulture with horses."

The census of 1860 reported the number of farmers and farm laborers, at 3,219,574 and the number of horticulturists at 57, so the preponderance of oxen must have been very great. I find also that while in the state of Wisconsin the same census reported 125,331 farmers, it reported not a *single horticulturist.*

Times have changed wonderfully in the last ten years. The greatest events of history have taken place. Continents have reeled with the shock of battle. The foundations of liberty have been more securely laid. The chains of servitude have been stricken from the bodies and souls of men. Thrones have been overturned burying usurping monarchs in their ruin. Science has won its proudest discoveries, spanning the ocean with nerves of intelligence, making of mountain peaks and abysmal depths highways of safety for the tireless iron horse; tunneling the barriers of ages, practically making the *cis*-alpine and *trans*-alpine of the ancients, *non*-alpine; reading the mystery of the sun and stars, telling us through the spectroscope of the very bell metal of those glorious constellations, which as

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Mr. EVERETT says, "Far up in the everlasting belfries of the skies chime the hour of twelve at midnight." The education of the people, of the whole people, has been occupying the attention of Parliaments and Senates as never before in the world's history.

But one of the most stupendous evidences of change, and progress too, would be found in the fact, if true, as the census states, that ten years ago there was not a single horticulturist in the state of Wisconsin, while to-day, there is in our midst a society embracing far more than the whole number of horticulturists in the United States in 1860. It must be conclusive proof that this society was not deliberately made, but, like TOPSEY, it "growed." I suspect the census takers must have been as much puzzled as the Dutchman was about himself and his twin brother. He said, "when I looks at mine bruder, I tinks it is myself, and when I looks at myself, I tinks it is mine bruder sure. So I's not sure which is mine bruder, him or myself, but I tinks, on the whole, myself is mine bruder." These census takers were not sure whether the horticulturist was a farmer, or the farmer an horticulturist, but, on the whole, they thought the horticulturist was a farmer, and so they put him down as such.

According to the census of 1860, 233,523 persons were engaged in different occupations in the state of Wisconsin. Let me enumerate a few classes. There were 1,100 physicians, 1,133 ministers, and 1,234 lawyers, illustrating pretty well as to their relative number the saying of a man who had combined within himself the functions of physician, clergyman and lawyer, that "he had found the average man willing to give 25 cents for his soul's salvation, 50 cents to be made well if sick, and $5.00 to have his own way." There were 3,949 teachers, 2,976 merchants, 28,238 laborers, 588 public officers, and 240 U. S. officers. The great majority of the remaining 225,269 persons whose occupations are enumerated, were engaged in employments requiring the use of the hand—they are the great, grand army of manual workers, and of this number, as I have before stated, 125,331 were engaged in the pursuit of agriculture.

In 1860 there was not a single school in the entire state of

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Wisconsin in which an education was imparted bearing specifically upon the life vocation of this vast number of producers. Since then provision to a slight extent has been made in some of our higher institutions of learning, and to a larger extent in the State University of Wisconsin. Still, comparatively but a few are reached.

PITT, when Prime Minister of England at twenty-two years of age, visited the University of Oxford, which had been bitterly opposed to him. But as "nothing succeeds like success," when he came to those ancient halls, the young men crowded round him to do him honor. The chancellor of the University not liking the sudden conversion, when he ascended the pulpit to preach the sermon before MR. PITT and the University, took for his text, "There is a lad among you with five barley loaves and two small fishes, but" (looking around very significantly) "What are they among so many?" What are these educational agencies among so many of you? Unless they can be multiplied you will go hungry for the bread of knowledge, eager though you may be to gain it.

I lay it down as a fundamental rule that the education of a people to a great degree ought to have reference to their professions and pursuits.

This rule does not bind us to make mere specialists; it does not sink the *man* in the pursuit, but it does say to him, "the thing you have to do in life, whereby you and yours are to be benefited, whereby society at large is to be the gainer, ought to be done in the *best possible manner*. Do as many other things as you decently can. Be as much of a cosmopolitan as you can. But be master in your own field. Unless this *is* the case, the manhood is wanting. It is the concentration of a man in a backbone, straight up and down, that makes him what he ought to be, and not its diffusion in gristle or gelatinous jelly.

Where shall this education be imparted? How many of this great army of workers find their way to our colleges and universities? How many of the 8,287,043 engaged in different pursuits in the United States trod the halls of these higher institutions of learning? How many of the 3,219,574 farmers of the country? How many of the 125,331 farmers of the state?

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Four-fifths of this number received all the instruction they ever were blessed with, at the "people's colleges," the common schools.

Our education is good as far as it goes, but it does not go far enough. We all ought to know how to read and write, it is questionable if we do. We ought to know how to cipher, and something of geography. When we have gone as far as that, we nearly all have said that is far enough for our common schools to go with us. I am glad they have gone so far, and I am here to-night to bear witness to the great value of the little that has been acquired in these public schools.

I have just been perusing with intense interest the report of the bureau of education, on the relation of education to labor. A series of questions was addressed to a large nnmber of intelligent employers in all parts of Union as to the effect of education—mainly common school, upon each person in their employ. The answers were nearly unanimous "that his value to the community at large is positively increased and his power as a producer of adding to the common stock of wealth, is materially enhanced by the education given him as a child in the common school. The increase of wages he will receive on account of his knowledge is put at various figures averaging nearly twenty-five per cent. That this increase of value arises, 1st, from the fact of his being more readily instructed in the duties of his work; 2d, that he needs less supervision; 3d, that he does his work to better advantage; 4th, that he is less liable to join in unreasonable strikes; 5th, is more industrious; 6th, less dissipated; and lastly, is less liable to become an expense to the commonwealth through poverty or crime."

Now, remember, gentlemen, that twenty-five per cent. is added to the value of the laborer from the possession of the slender outfit given in the common school. What will be the per cent. of value if, in addition to this, he receives a training, in part, which specially fits him for his work. The answers are given to such an inquiry in the report alluded to. That a knowledge of the sciences that underlie the occupation gives greatly increased value to their possessor, is agreed on all hands. It does this: 1st, by enabling him to avoid dangers, in

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mining for instance, to which ignorant men are exposed; 2nd, by enabling him to detect and remedy difficulties, which else would cause expense and delay; 3rd, by enabling him to discover shorter and simpler methods of work, thereby increasing his powers of production; 4th, by stimulating his qualities of contrivance, so that he adjusts and modifies the tools or machines which he uses, and becomes eventually an inventor of simpler and better machines, thus increasing the wealth-producing power of his fellow laborers. In this direction it is estimated by these men, competent to judge, that his value is increased *one hundred per cent.*, while in certain exceptional cases it is incalculably higher. Better even than all this, it advances the well-being of its possessor. By virtue of his increased education he commands higher wages for his services, and also adds largely to the common production.

A case illustrating this very point is given by Prof. JOHN S. HART. He says, "a gentleman of my acquaintance had frequent need of the aid of a carpenter, for alterations, odd jobs and adaptations to meet special wants, and no little time and material were wasted in the perpetual misconceptions and mistakes of the successive workmen employed. At length a workman was sent who was a German, from the kingdom of Prussia. After listening to the orders given, MICHAEL would whip out his pencil, and in a few minutes would present a sketch of the article, so clear that any one could recognize it at a glance. Thus there was no waste of time nor material, and such was the demand for MICHAEL'S services, that, though he was no better carpenter than many others, yet through his knowledge of drawing obtained in the common schools of his native country, he could obtain two dollars per day, while his companions in the same shop only received a dollar and a quarter. What is true of MICHAEL in carpentry would be true of any other department of mechanical industry."

What a convincing argument is given in this report for our common school system. *It pays*, in the lowest as well as in the highest sense to educate the people. According to the last census, 1,554,931 adult males were regarded as illiterate. If, now, according to the opinions before given these persons should

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earn each one dollar per day in their illiterate state, by learning to read and write, twenty-five per cent. would be added yearly to the production of the country, or $116,612,425, nearly twice as much as is paid annually for public instruction in the United States. If, now, we take four-fifths of the 8,287,043 engaged in various pursuits in the United States in 1860, who received their education in the common schools, considering each one as capable of earning one dollar per day without such education, and $1.25 with it, we have a yearly addition to the production of the country of $523,740,178, nearly nine times the amount paid annually for public school instruction. Then, consider what the increased production would be if specific instruction were given to these persons in the different branches of industry represented by them, or if, in early life, studies were pursued bearing directly upon their vocation. The instruction that these men need, in the main, is in the facts and truths of natural science, for these lie at the foundation of the life-work of the vast majority of the producers of our country's wealth. These sciences must be studied if our nation would attain the exalted destiny which clearly awards it.

Dr. Playfair says, "the great advantage of such an education is, that while it elevates the individual, it at the same time gives security for the future prosperity of the nation. There are instances of nations rich in natural resources of industry, yet poor from the want of knowledge how to apply them; and there are opposite examples of nations utterly devoid of industrial advantages, but composed of an educated people who use their science as a compensation for their lack of raw material. Spain is an example of the first class, and Holland of the second. Spain has everything in the richest profusion to make it great and prosperous. Few countries have such riches in the natural resources of industry. A rich soil and almost tropical luxuriance make her a great food exporting nation. Iron and coal, copper, and quicksilver and lead abound in profusion, but these do not create industries unless the people possess knowledge to apply them. When that knowledge prevailed, Spain was indeed among the most advanced of industrial nations, not only her metallurgic industries, but her cotton, woolen and silk

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manufactories were unequaled; her shipbuilding was also the admiration of the nations. But all have decayed, because science withers among an uneducated people, and without science nations cannot thrive.

"Turn now to Holland, once a mere province of Spain. She has nothing but a maratime position to give her any natural advantage. Not so bad, indeed, as VOLTAIRE's statement that she is a land formed from the sand brought up on the sounding leads of English sailors, though she is actually created from the debris of Swiss and German mountains brought down by the Rhine. Hence within her lands are no sources of mineral wealth; but she has compensated for its absence, by an admirable education of her people. And so this mud-produced country, fenced round by dykes to prevent the ocean from sweeping it away, is thriving, prosperous and happy, while her old mistress—Spain—is degraded and miserable, unable in all Europe, until lately, to find a King, who would undertake to govern her ignorant people."

Let me give an illustration of the value of science which has recently come to our notice: One of the most audacious and magnificent swindles of the ages has just been exposed by it—the diamond swindle. So cunningly and brazenly had its originators gone to work, that the wealthiest and shrewdest men in New York city were taken in. Gen. MCCLELLAN was President of the company, which had a capital of $100,000,000. Eighteen other companies were formed with a capital of $18,000,000. Fabulous stories were told of the diamonds found in the Arizona mines; the evidence was so minute and circumstantial that doubt seemed well nigh impossible. But a young graduate of Yale College, Mr. CLARENCE KING, went quietly to work with his two assistants, and after a careful examination, they found, and showed to the satisfaction of the world, that these fields had been "*salted*" by the hand of man, and not sown by the hand of God.

The question arises, shall the studies in the natural sciences be reserved for a mature intellectual development, or shall they begin with the mental growth of the child? I answer, they are the first studies to be pursued or taught. I again quote from the eminent Dr. PLAYFAIR:

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"The whole yearnings of the child are for the natural phenomena around him, until they are smothered by the ignorance of the parent. He is a young LINNÆUS roaming over the fields in search of flowers. He is a young conchologist or mineralogist gathering shells or pebbles on the sea shore. He is an ornithologist and goes bird nesting; an icthyologist and catches fish. Glorious education in nature is all this, if the teacher knew how to direct and utilize it. The present system is truly ignoble if it sends the workingmen into the world in gross ignorance of everything he has to do with it. If you bring up a ploughman in utter ignorance of everything relating to the food of plants, of every mechanical principle of farm implements, of the weather to which he is exposed, of the sun that shines upon him, of the rain which, while it drenches him, refreshes the crops around, is that ignorance conducive to his functions as an intelligent being? All nations that have in recent years revised their educational systems, have provided a class of secondary schools for the industrial classes, especially devoted to teach them the principles of science and art relating to their industries. Holland compels every town of 10,000 inhabitants to support such a school."

Distinguished educators, men of science, and literary men, unite with the keen, practical men of the world, who have no pet theories to advocate, in expressing their opinions of the value of these sciences in the primary schools.

In the province of Ontario, through the efforts of Rev. Dr. RYERSON, who has been at the head of its educational interests as chief superintendent of education for more than twenty-five years, and who is second to none in the civilized world for practicality, success and ability, as an educational executive officer, a bill has been passed requiring the elements of mechanics (including drawing), commercial instruction, the elements of practical science, agriculture and natural history to be taught in the public schools. I am under many obligations to Dr. RYERSON for the valuable information on the subject under discussion contained in his report for 1872.

The superintendent of public instruction for the state of Maine, asks and answers the following pertinent questions in

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regard to the studies of our common schools: "What shall be taught in our common schools? *Answer.* Those things necessary to our children as men and women? When shall the several branches be taught? *Answer.* As fast as their faculties of sensation, perception and reasoning develops. How shall they be taught? *Answer.* In the order of development of the child's faculties, and with all the allurements possible to the inventive power of the adult mind.

The superintendent of public instruction for the state of Kanas says, "A practical education is by far the best. Close observation in every day life leads to this."

Prof. ALLEN of Pennsylvania, an eminently successful teacher in the school-room and institutes, says: "As all studies in the school-room, may be classed under the three heads of language, mathematics and natural science, and as the elements of all physical and natural science should *be taught to the youngest child* that enters the school, every child should have daily one lesson in lanuage, one in mathematics, and one in science."

A year ago the legislature of Illinois enacted that "no teacher shall be authorized to teach a common school who is not qualified to teach the elements of the natural sciences, physiology and the laws of health, in addition to the branches previously required."

Hon. NEWTON BATEMAN, Superintendent of Public Instruction in that State, thus defines what he understands the law to mean by "elements: "the elements of science are its fundamental principles, its rudiments, its primary rules, laws and facts; the simplest and most essential things involved in a knowledge of it." He defined natural sciences as applicable to the common schools of that state to mean Botany, Zoology and Natural Philosophy.

Hon. WM. T. HARRIS, Superintendent of the Public Schools of St. Louis, asks the question, "Can we not give those children who study five years or a less time in our public schools, some knowledge of the outlines of physics and natural history, which will be of great service to them in after life and for the time being not interfere seriously with the prosecution of elementary studies?" He answers the question in the affirmative.

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The Royal Commissioners of Great Britain appointed to enquire into systems of schools, report in regard to the study of natural science as follows: "We think it established that the study of natural science develops better than any other study the observing faculties, disciplines the intellect by teaching induction as well as deduction, supplies a useful balance to the studies of language and mathematics and provides much instruction of great value for the occupations of after life."

Prof. AGASSIZ, in an address at an educational meeting in Boston, says: "I wish to waken a conviction that the knowledge of nature in our day lies at the very foundation of the prosperity of states; that the study of the phenomena of nature is one of the most efficient means for the development of the human faculties, and that on these grounds it is important that this branch of education should be introduced in our schools as soon as possible."

The language of Thomas CARLYLE has found a response in the breast of many a cultivated man, when he wrote: "For many years it has been one of my constant regrets that no school master of mine had a knowledge of natural history, so far at least as to have taught me the names and habits of the little winged and wingless neighbors that are continually meeting me with a salutation which I cannot answer, as things are."

I contend these studies not only underlie the pursuits of so many persons but they also pertain to all true complete culture. Every student whatever he may be in future life should know these ground truths of nature. Poor indeed is that education which now leaves them out. Discipline is in them of the most rigorous kind; ideas clear, crisp and definite are in them. Beauty is in them. Sublimity is in them. Logic is in them. Law is in them. Order is in them.

These are the letters of the alphabet which the God of Nature himself has given.

Here are stories and histories more fascinating than the Arabian Nights Entertainments, and more glowing and truthful than the enrapturing pages of Macaulay; but our untrained eyes see them not.

Listen! there are ten thousand voices more exquisite in their

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melody and harmony than the strains that come from the lips of an ADELINE PATTI or from the magic strings swept by the fingers of an OLE BULL. There are more soaring symphonies than BEETHOVEN ever wrote, and grander oratorios than HANDEL ever composed. The air is heavy with music; but our dulled ears hear it not.

Object lessons, we say children ought to have. Pictures, we say children ought to have. Why, here are pictures in forest and field, on water and sky, in matchless colors of unspeakable beauty, filling and thrilling and blessing the receptive soul — pictures the Great Artist himself has designed to limn for the grace and glory of our lives, and we turn from them and go into raptures over pigment and pigmy daubs!

Back to nature, gentlemen, we must go; back to that nature with which you have to do; back to nature, not only for sentiment, but for truth and life. Back to her trees, her shrubs. her flowers; back to her rocks, her hills, her vales; back from the seen to the unseen — from phenomena to processes and laws; back from these to the mind and heart of Nature's God.

I make, then, an appeal to you, gentlemen of the horticultural and agricultural societies, to help introduce the study of these sciences, in their *elements*, in the common schools of the state. Taught as they can be taught, they need not and will not crowd out the studies now pursued; nor will more studies be introduced than our children can successfully master. If instruction is given each day *orally* in the objects of nature (and it may be given in connection with other studies, such as geography), it will *rest*, as well as please and instruct the mind. To teach these elements we must have *teachers*, that is the first necessity. To have such teachers the studies must be required by law. Once required, the facilities for gaining the information desired will be furnished in abundance. Already the board of regents of normal schools have laid down these studies in the first year of the course in the different normal schools of the state. Teachers' institutes will supplement the work of the normal schools. Suggestive text-books will be issued in response to the demand; and the result of the experiment, if tried, will be, that teachers will not know *less* of arithmetic and grammar be-

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cause they are required to know *something* of the elements of natural science.

Wisconsin should fall into line with Ontario, and Illinois, and St. Louis, and lead the column of the primary schools of the states and the world, as they shall keep step to the music of science in her glorious march through the world and to the stars.

In this capitol, last December, the county superintendents, teachers and friends of education in our state, unanimously expressed their opinion that the natural sciences, as soon as practicable, should be taught in all our schools.

A bill has been introduced into the Legislature to make these studies obligatory upon teachers after January 1, 1874. Let it pass. The thanks of the young and the benedictions of the old will hereafter rest upon all who shall aid the movement fraught, as it is, with untold good.

I plead, gentlemen, for model schools, model school houses and model school grounds. It is in your power to make them. Create the demand and model teachers enough will be found to lead your children in the way of truth.

In conclusion, gentlemen, besides model schools, let us have model homes. Homes crowned with the clambering vine, amid the cooling shade of trees, surrounded with the verdant lawn, with pendent berries, with golden fruits and clusters of crimson grapes, homes graced with pictures, refined by books and gladdened with song. Homes in which there shall be no scorching blasts of passion, nor polar storms of coldness and hate. Homes in which the wife and mother shall not lose all her attractive charms by unremitting drudgery and toil; nor the husband and father starve his brain and dwarf his soul by hours of over-work. Homes in which happy children shall ever see the beauty of love and the beauty of holiness. Homes of plenty, homes of sympathy, homes of self-sacrifice, homes of devotion, homes of culture, homes of love. Angels from the fruits and flowers and streams and fellowships of the home in the upper Paradise would be lured to dwell in these earthly Edens.

The people's poet truthfully wrote—

> "This world is full of beauty—
> It might be full of Love."

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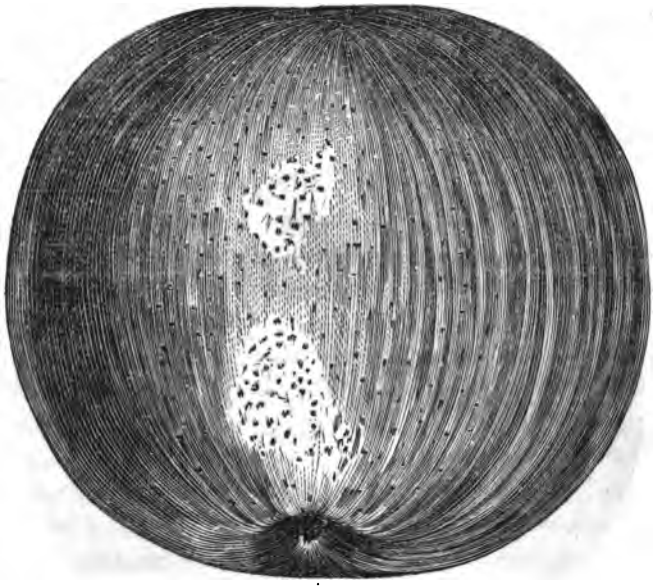
But out of the very *heart* of truth he struck the divine song—

> "This world is full of beauty,
> When the heart is full of Love."

That is what we need—love in its manifold forms; love of nature, love of truth, love of integrity, love of our work, love for man, love for God. Gain this love! It is the open sesame to all the mysteries of matter and mind. It is the soul of all enthusiasm; of all insight; of all success. Love virtue—

> She will teach you how to climb
> Higher than the sphery chime.
> Or if virtue feeble were,
> Heaven itself would stoop to her.



Pewaukee.

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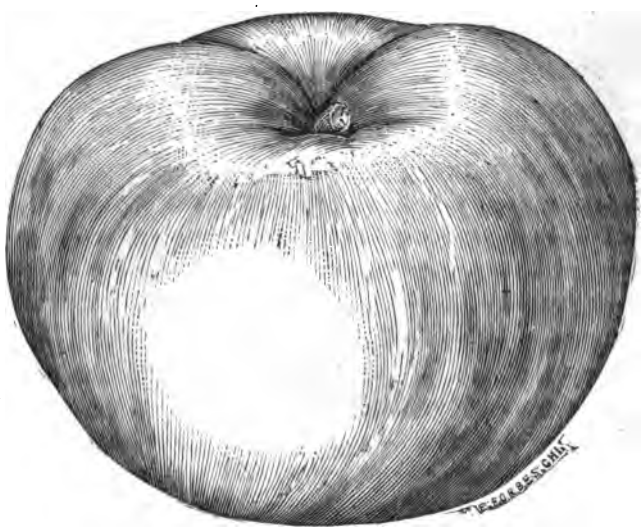
STATE HISTORICAL ROOMS,
THURSDAY, A. M.

President STICKNEY in the chair. The attendance is still large. On account of the occupancy of the agricultural rooms by the convention held under the auspices of the State Agricultural Society, the horticulturists met, through the kindness of Mr. DURRIE, the librarian, in the rooms of the Historical Society. It is but just to remark, that Mr. DURRIE takes a deep interest in the welfare and advancement of the Horticultural Society, and is willing to forego his own convenience and pleasure, that they may have the pleasant rooms of the Historical Society, in which to hold their sessions.

The fruit has all been removed to the Historical rooms.

The collection is not as large as has often and usually been placed on the tables at the winter meetings. Still there are many fine specimens of both named varieties, and seedlings of promising merit. As specially noteworthy is *The Pewaukee*, a sectional cut and full description of which was published in the volume of Transactions for 1872, page 154. The cut presented on the preceding page gives a very good illustration of its natural size.



Weaver Sweet.

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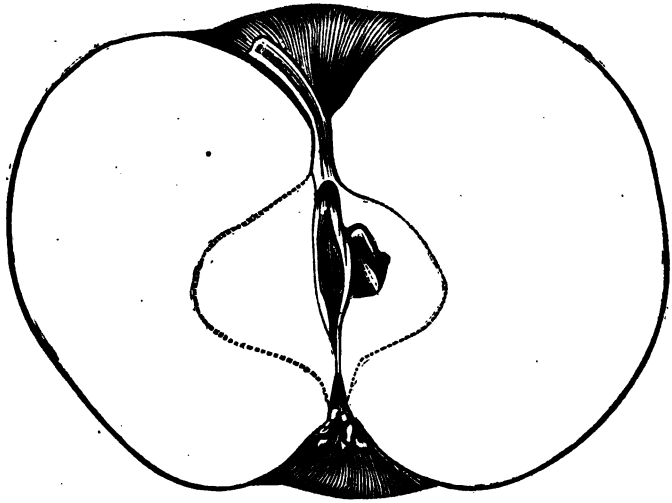
THE WEAVER SWEET,

Recently brought to notice in Sauk county, and of which but very little is known elsewhere in the state, so far as the editor is able to ascertain. This is a very handsome apple, rivaling the Maiden's Blush, which in many respects it resembles. An illustration is herewith given:

Of this variety, Mr. CHARLES HIRSCHINGER, of Baraboo, whom I consider excellent authority, writes:



Weaver Sweet—Outline.

"In 1850, my father bought twenty-five trees from a man named SIZHTS, from Ohio. Five of this number were Weaver Sweet. In 1860, one of the number broke down under a heavy load of apples. The other four are alive, and have borne fruit every year since they commenced bearing, always producing exceedingly heavy crops, so much so that those of my old teees have had some of the large limbs broken down from over-bearing. I have about twenty-five kinds of sweet apples, but no other that does as well as the Weaver Sweet.

"The Tallman Sweet is short-lived with me, besides the fruit is almost always wormy. The Bailey Sweet has top-killed several times, and I cannot think it more than half hardy. I do not know of any Weaver Sweet except in the towns of Fredonia and Westfield. These trees were all planted in 1850, and have never been hurt by the winter, so but that they have fruited more or less every year. I find them heavy annual bearers.

"I have grafted trees for my neighbors for the last ten years, and they

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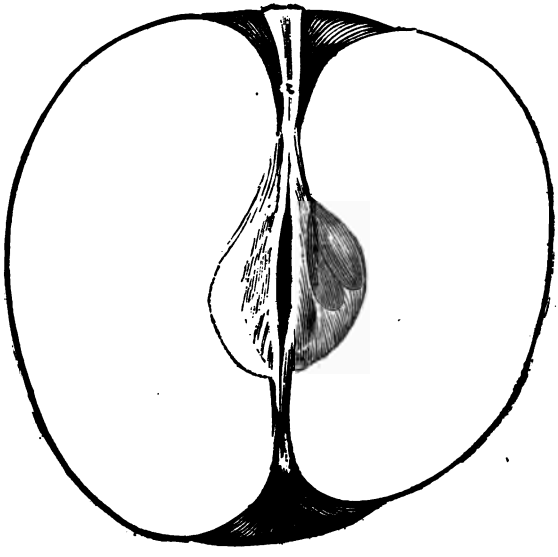
always prove satisfactory, and they want more. Am satisfied that in the timber, they are doing the best of any of the sweet apples. One and all who have them call them all right, if they can keep the trees from breaking down by over-bearing."

Ben Davis.



Ben Davis—Outline.

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Mr. TUTTLE thought very favorably of the Weaver Sweet, being larger than the Tallman, better flavor, and thus far exempt from insects.

From the interest that is now being given to the

BEN DAVIS,

I feel warranted in inserting a cut of the apple. The specimens on the tables are very fine, large, smooth and fair. Quality better than has usually been attributed to it. The perfect hardiness of this variety, both in nursery and orchard, together with its great bearing and long keeping qualities, and fine appearance for a market fruit, will, without doubt make it a popular western sort.

THE SHOW OF GRAPES

Is much better than usual, and shows much and valuable progress in this direction.

PREPARATION OF DRIED FRUITS.

President STICKNEY said that Mr. SCHUYLER, of 45 Michigan Avenue, Chicago, was present, and was largely engaged in drying fruit for the market. That the samples of dried fruit on the tables were from his establishment, and to judge from its appearance he had no doubt the Society would like to hear from Mr. S. upon the subject.

Mr. SCHUYLER said that his process was known as the Alden process; that next in importance to growing fruit, is some convenient and economical method of preservation, a preservation that will retain all the flavors and properties, so that its use may be extended over the whole year. The Alden fruit here on exhibition is merely fresh fruit in a dry state, its water having been extracted in from two to four hours, leaving all its flavors and essentially its freshness, so that after soaking in cold water, cooking and making into pies or sauce, it would not be distinguishable from the fresh article. There is only one chemical change, that of an increase in grape sugar, which is advantageous, both in point of economy and richness of taste.

Fruit in this shape becomes a commercial article, capable, like

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flour or cheese, of transportation at small cost, to any part of the globe. Fruit and vegetables prepared by the Alden process compare very favorably to the canned article, and can be afforded with good manufacturing profit at one-half the cost, and be transported at from one-fifth to one-tenth the cost.

This puts fruits and vegetables in a fresh, palatable shape, within the reach of consumers generally, at all seasons of the year, and in every part of the globe. The Alden process also furnishes a home market, where factories are established for fruits and vegetables, and enables agriculturists to carry on a diversified farming which all understand to be more profitable as well as agreeable. A few acres devoted to tomatoes, green corn, squashes, berries, when a market can be obtained, will yield much larger returns than wheat, oats or corn.

The cost of preparation and evaporation of apples is about three cents per pound, and six pounds are obtained from a bushel. Nothing in the apple is lost, as the cores and skins are converted into Alden jelly—a superior article made without sugar or boiling. There are ten factories in operation in Illinois and Michigan, and all the first grade of dried apples from these factories have been sold at twenty cents per pound. This, at first thought, might seem rather high in price, but when you remember there are only fifteen pounds in an ordinary barrel of apples, you see that three dollars a barrel for first-class fruit (in a perfect state of preservation) in February, March, April, May, June or July, is a very moderate price indeed. Alden fruit is not dried fruit, as it is ev aporated in a humid atmosphere, the pores being kept open till the water is all evaporated (except what forms a hydrate, and thus no starch gum found in common dried fruit or fruit dried in a dry heat), is found in this.

There is a common error as to drying fruit, which should be corrected. Fruit drying, to be successful, must be done as a manufacturing operation, on a larger or smaller scale, same as cheese making. A sufficient number of boys and girls must be employed to prepare the fruit (half bushel or bushel), every three or five minutes, so that it may not discolor or oxydize. Every minute it is exposed to air or light, after cutting, adds to its discoloration and detracts from its quality. No method, ex-

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cept the Alden process, will yield fruit that is essentially fresh and possessing all its original flavor. This process is equally valuable in drying every kind of vegetable or herb, and it is especially valuable in drying hops, much more economical and expeditious, and making an infinitely superior article to those dried by the common method. I may describe an Alden evaporator, and the process, as follows:

The principal part of the apparatus consists of a vertical chamber or shaft, 20 to 25 feet high, and 3 to 5 feet square, containing a series of frames, one above another, 4½ inches apart, covered with netting, and moved upward all together by endless chains. The heating apparatus is placed under this chamber, from which currents of air, heated to any required temperature, pass up, through, and around the frames. On each frame is spread, say, 20 pounds of fruit. The lowest frame is first placed in the chamber directly over the heat, at the bottom of the shaft, where it remains for from three to six minutes. It is then moved up 4½ inches, and another frame of fruit is placed beneath it. At regular intervals the whole series of frames are moved upward 4½ inches, and a fresh frame is put on beneath them until the frames are all in, containing, say, (if apples), 21 bushels of fruit. At this time, the shaft being full, one frame is taken off at the top, and one is put in at the bottom at regular intervals, varying with the variety of fruit treated, and the thickness of the slices or pieces. Each bushel of apples contains about 40 pounds of water which is seized by the ascending air, and passes with it up, through and around the fruit as the moisture is taken gradually from it, enveloping it to the last in a cloud of vapor. The pores of the fruit are thus kept open, free for the circulation and exit of vapor, until all the free water is removed; the remainder (16 per cent.) being held as hydrate. It is well known that fruit will not mature, ripen and sweeten up in strictly dry weather, nor in cold, wet weather. The Alden evaporated fruit follows the law of nature in this respect. It does not become, therefore, dried fruit, as nothing, evidently, can be dried in vapor without pressure. The product per week (if apples) will be about 3,000 pounds evaporated fruit, worth 20 cents per pound, and 1,200 pounds evaporated cores and skins, worth 6 cents per pound. For the evaporated cores and skins, and also for small and deformed fruit (sliced up in a machine without paring or coring), an ample demand already exists in the Alden Jelly Factories, which pay 6 cents a pound cash for all the properly evaporated jelly stock of this kind that can be obtained. It should be remembered that the core is the richest portion of all fruit, and, with its hulls and skins, contains the most of the ingredients required for jelly.

The price of an evaporator with heater, and right for use, is one thousand dollars.

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The following committee report was presented on the

NOMINATION OF OFFICERS.

The committee on nomination of officers for this Society for the ensuing year, would respectfully report, that they are unable to agree upon a list of persons to fill the respective offices, and would recommend that the Society proceed to the election of officers by ballot, without any recommendation from your committee.

Respectfully submitted,

G. P. PEFFER,
C. H. GREENMAN,
F. S. LAWRENCE.

Mr. HOILE moved that the election of officers be made the first business of the meeting after dinner. Which was adopted.

President STICKNEY drew the attention of the members to the fact that some members had brought their wives with them, but they felt a little diffidence in bringing them into the meeting, and he thought it would be well to take some action on the subject, and raised the question if there was any objection to treating them as invited guests, and to take part in the essays and discussions of the meeting.

Mr. HOILE thought this was a very essential thing to do. In all societies that he was acquainted with, where the ladies had been admitted, the society had prospered, and the interest had been kept up much more easily than otherwise. He hoped the society would secure the attendance of the ladies.

Mr. LAWRENCE moved that all ladies be cordially invited to take part in our meetings, and that all who do so are hereby constituted honorary members. Motion was adopted.

Mr. PLUMB offered the following:

WHEREAS, That among the primary objects of this society in its annual exhibitions, is to encourage good culture of the finest fruits adapted to our climate, and to encourage the general exhibition of the same from all parts of the state. Also, we deem it a worthy labor and duty of this society to correct the misnomers, so prevalent in the exhibitions of the west; therefore,

Resolved, That we will not encourage the exhibition of specimens that show the effect of neglect in culture or of disease.

Resolved, That our premiums shall be so diversified and diffused as to encourage the largest exhibition.

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Resolved, That collections not named shall not come in competition with named collections; and that the society will furnish all reasonable means to aid exhibitors in giving correct names to their fruits, and that a correct nomenclature is a condition of competition in the professional list.

This resolution was unanimously adopted.

Mr. PLUMB, from the committee on nomenclature, spoke of the necessity of continuing the labor of correcting the many misnomers in our fruit list; and of the many errors that prevailed among exhibitors. Spoke of the need of obtaining the correct original names of valuable varieties, that they should, just as far as possible be dissiminated by the true name of the books. Instanced the case of Walbridge, and the need of knowing its correct name. The "Utter" was the same as the "Cooper" of the books. Plumb's Cider was claimed by some to be indentical with Smith's Cider of the authors. He showed by fruit and cion that they were quite distinct. The former was growing in this state and Minnesota, worthy to be classed among the iron clads, while the latter was tender even in Northern Illinois.

Mr. KELLOGG said in view of the conflict among authors upon the identification of Smith's and Plumb's Cider, he offered the following:

Resolved, That in the opinion of this society, that from the presentation of the genuine Smith and Plumb's Cider, apple and cions, and our conversant knowledge of Plumb's Cider, that they are two distinct varieties.

Report and resolution were adopted.

Mr. HOILE offered the following:

Resolved, That we deem it of special importance, that the committee on seedlings and nomenclature, submit written reports at our annual meetings.

Carried.

DELEGATES TO AMERICAN POMOLOGICAL SOCIETY,

Was called up, and MR. HOILE moved that the society will send delegates to the biennial meeting of the American Pomological Society, that the appointment of them be left with the Executive, who will at the same time furnish them their credentials. Adopted.

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Mr. LAWRENCE offered the following:

Resolved, That the matter of collecting fruits, etc., be left with the executive committee of the society, and that they be requested to ask the aid and co-operation of local societies, in collecting and defraying the expense of shipping the fruit to Boston, and that this society appropriate the sum of fifty dollars for the purpose of defraying the above expense.

The resolution was adopted.

Mr. G. E. Morrow offered the following:

Resolved, That our delegates to the meeting of the American Pomological Society, at Boston, be instructed to respectfully urge that the next biennial meeting, September, 1875, be held in Chicago.

Carried.

A paper was next read on

INSECTS INJURIOUS TO THE HORTICULTURIST.

BY H. M. THOMAS, OF ST. FRANCIS.

It is only within a recent period, after innumerable tests continued for years, and attended with many disappointments at the loss of valuable time and money, that horticulturists have been able to settle upon a few varieties of fruits suitable to the wants of the grower and the tastes of the consumer, which will endure the extreme and sudden changes of climate in the Northwest.

At the moment of arriving at that point, we hoped to be at a successful termination of our labors, but we are beset with new and most perplexing embarrassments to successful fruit growing.

At the annual meeting of the Wisconsin State Horticultural Society in February, 1872, some remarks were made in reference to the canker worm, and in connection with which, in the society's report for that year, appears, an article from Prof. W. W. DANIELLS, written to the *Western Farmer*, giving HARRIS' description of the worm, its habits, and proposing some remedies for preventing its ravages, and for the destruction of the insect in its larva state. This article has attracted the attention of many agriculturists, and horticulturists, to the necessity of the earliest investigation as to the most efficient measures of checking its ravages, and of effecting its extermination as far as prac-

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ticable. It is certainly an enquiry which is fraught with results affecting the interests of every fruit-grower in all sections, whether in the country or in our more densely populated cities and villages. It affects every fruit-grower who grows a half a dozen or a thousand apple, plum, cherry, certain varieties of shade and street trees, and flowering shrubs, for all of these are attacked by this most injurious and destructive of all known insects. It is more injurious than the apple-borer, (*Saperda bivittata.*) This is less numerous, makes isolated and local attacks, and may be cut out, or be killed by the insertion of flexible wire into the cavity which it has excavated for the purpose of securing food and a home while in the larva state.

It is more *injurious* than the Codlin moth (corpocapsa pomonena) because that can be entrapped, and only subsists upon the fruit it may injure and destroy from year to year, while the tree may make a more luxuriant growth, and be longer lived in consequence of being divested of much of the fruit before it attains maturity.

More *injurious* than the Tent caterpiller (clisocampa), because the young larvæ of this insect, in the morning, are to be found congregated in their nests of silken web, where they are easily attacked and may be destroyed by wholesale.

More *destructive* than the green Aphis, because that only infests the extremities of the twigs and branches, and can be killed by immersion in a decoction of tobacco.

More *injurious* than the bark louse, because they only attach themselves to the bark of the trunk and limbs of the tree, and may be destroyed by an application of whitewash or kerosene, and by stimulating the growth of the tree to such an extent that they will instinctively make their departure for other trees of less vitality, which are better adapted to the increase and perpetuation of the species.

More *injurious* and destructive than all these insects combined, because its attacks are not isolated, but general, subsisting upon and destroying the foliage of the whole tree, and if unobstructed in its progress, will increase in number, extending its ravages from year to year, until the whole orchard becomes a prey to its attacks, and if the trees do not die in consequence

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of this annual defoliation, their vitality must become greatly impaired.

This insect, which hides by day and cannot be successfully entrapped by night, the female of which having no wings, were there no other faculties than its own powers of locomotion, would make but slow progress in its devastating march, were it not unintentionally assisted in its movements by the hand of man, who, as suggested by Profs. HARRIS and DANIELLS, "may carry it upon his clothing, on wagons, and upon the backs of animals." And it is possible that the removal of trees and cions from infested into uninfested districts, may be another means of disseminating the insect. The danger to be apprehended by the last-named means, would seem, in a great measure, to depend upon the question whether the insect is a native or imported. Prof. RILEY, in a note of recent date, states, that, "being a native American insect, it doubtless always existed here (in the Missouri valley) on our scattering wild fruit trees, and on elms. It was known about a century ago in the east, and extends as far west as Kansas, and at least so far south as the southern part of Missouri." In accepting the opinion of such eminent authority in regard to the origin of the species, it would naturally be concluded that as it exists throughout such a broad extent of territory, that it would be immaterial whether it was carried from one point to another within the section named.

On the other hand, if the canker worm be of European origin, it would be of vital importance that precautionary measures be adopted to prevent its introduction into uninfested districts. In consulting HARRIS, page 332, edition of 1842, in describing the canker worm, (*anisopteryx pometera*), he states that it might be distinct from *anistopteryx vernata*, and that it closely resembles the *æsculava* of Europe. The close resemblance of HARRIS' species to the other two named species, leads us to the inquiry whether the three species may not prove to be identical. In Dr. FITCH's third report, the *anisopteryx vernata* is described as variable, the white bands often wanting, and Prof. RILEY, in his second report, page 95, in describing larvæ of the same insects, states that it varies greatly in the intensity of its markings, however, ash grey, green and yellow ones occurring in the same

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brood; and that the most constant character by which it may be distinguished of the same size, is the pattern of the head, and further, that the markings of the worm vary indeed so much that without this criterion, he would hardly venture to determine the canker worm larva. The close resemblance of the species referred to, and the variableness which exists in any one of the species, would lead to the inference that the so-called American species may possibly be of European origin, and that since its introduction, the insect being subject to different climatic influences, may be in a state of variation. If this inference be correct, we must conclude that the canker worm was imported with trees, and by other means, the same as other species of known European origin, of which the currant worm and Codlin moth are instances. In further corroboration of the theory advanced, it may be cited that the canker worm was very numerous and destructive in a portion of the New England states before they were known to exist in many other portions of the country.

If this insect is liable to be disseminated in the manner referred to, the fact cannot become too generally known, so that preventative means may be taken to prevent its spread.

Mr. ROBERT MANNING, of Salem, Mass., in a recent note in reference to this subject, remarks: "There would be danger of introducing canker worms on trees, but less on cions, as the eggs are generally laid on the crotches of two or three year old wood. They are in little patches of greyish brown color. * * * Possibly a chrysalis might be found in the earth adhering to the roots."

Prof. RILEY also says: "Not if the cions are quite smooth, still they should be examined, especially about the buds. The eggs, when the mother is not frustrated, are always deposited in some sheltered situation, such as under loose bark, deserted cocoons and cases of other insects—especially in the empty cases of the rascal leaf crumpler (*Acrobasis nebuls*)."

Dr. LE BARRON, in a note upon the same subject, states: "They do not deposit them on twigs and cions, and therefore there is no danger of disseminating the insect by the removal of grafts and cions. The only time when the trees have eggs

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on them is a couple of months or less in the spring, between the time of laying and that of hatching. A few stragglers sometimes run late in the fall, when weather is mild,* * * but I think ninety-nine hundredths of the eggs are laid in the spring."

From the agreement of such eminent authority upon all the essential points in reference to the dissemination of the canker worm by removal of trees and cions, by means of the eggs upon the trees, which being very minute, are likely to be overlooked, especially when the bark is of similar color, it is to be concluded that the greatest danger to be apprehended is from the removal of trees. And that the chances of eggs being deposited upon cions are very slight, owing to the fact that there is but one brood in the season, resulting from the eggs which are laid in early spring. But as the moth sometimes emerges from the ground late in autumn, and in warm days in winter, "its sole object being the perpetuation of its species," we are in the absence of positive authority, led to believe that at this time, in favorable seasons, that eggs may be deposited which might retain their vitality until spring, before hatching. This conjecture furnishes the only probability there can well be, of the eggs being found on grafts and cions cut in winter. While the spring laid eggs might be found about the buds of cions, cut after the appearance of the moth in spring, if disseminated at all by cions, the latter would seem to be the most likely way in which it is done.

As the insect in the imago state is usually hid during the day,* it would not be likely to be seen by the casual observer, and, as a description of it is found in the Wisconsin State Horticultural Transactions for 1872, attention is immediately called to the subjoined description of the larvæ as copied from the Transactions of the United States Agricultural Society, vol. 16, A. D. 1856, for which, and references to some other works upon this subject, I am indebted to the courtesy of Dr. I. A. LAPHAM.

The eggs hatching the last of May, "the young larvæ pierceing small holes in the leaves, and, when larger, consuming all the leaf, except the large veins. A large, variable worm, nearly an inch long, 10-footed, black, clay yellow or greenish, com-

*Harris, p. 335.

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monly with an ash-grey back, and a pale yellowish strip along each side."

The young larvæ, even when existing in great numbers, are not usually noticed. It is only after attaining considerable size, and the foliage nearly consumed, that attention is called to the worm. When not feeding, it may be found either in a recumbent position, or at an angle of 45°, or attached to the underside of the leaf, or, in some instances, snugly ensconsed within a rolled up terminal leaf. The young larvæ so closely resemble many other measuring worms of the same group (*Geometriadæ*) that the most expert professional entomologists are at a loss to determine the species without a critical examination of the head.* HARRIS states that he is acquainted with seventy-eight span worms existing in the state of Massachusetts, and as a number of the species have six forward and four hind feet, and are of similar color and size to the canker worm, the females of the former having wings, are likely to be confounded and cause a failure in the adoption of measures which might prevent the ascent of the tree by the wingless female of the true insect for the purpose of depositing her eggs.

Prof. RILEY gives a description of four cannibal and parasitic insects, and mentions three others which prey upon the canker worm in its different stages.†

Vast numbers of the larvæ are annually consumed by insectiverous birds, and on referring to Willson's American Ornithology,‡ it is found that there are no less than fifty-eight species of birds living in meadows or in the vicinity of barns and houses, which partially or wholly feed upon winged insects, their eggs or larvæ. Fifteen of these species are usually found in orchards, and are particularly noted for their incessant activity in destroying countless multitudes of insects, which are so injurious to the fruit-grower.

The sudden numerical decrease in the canker worm, in some localities, may be partially or wholly attributed to the increase, and more active warfare of its "cannibal and parasitic foes," which attended with a failure of early small fruits, probably forces the insectiverous birds to almost wholly rely upon the

*Riley's 2d Rept., p. 95. †2d Report, pp. 102 and 103. ‡Edition, 1854.

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larvæ, as their principal food. An additional, if not a paramount cause, may be cited, that "it must not be forgotten that the male emerges from the cocoon some days before the female,"* and as his emergence often takes place in warm days in autumn, after a severe frost, while the female is yet safe, the males, although usually quiet during the day, might be sought and discovered in their hiding places by the insectiverous birds, whose usual summer supply of food, has become exhausted at this season of the year. Not having made any experiments, and not having any authority at hand relating to the effects of frost upon the insect in the imago state, it might be well to suggest that severe freezing of the insect after its emergence from the ground, might either kill the male, or impair his vitality. In either event, the remaining males emerging from the ground at a later date, would perhaps be less numerous than the females, and if Dr. WALLACE's theory be true, that the male imparts less vitality in the second and third fertilization, then the second and third generations would be weakly and accordingly less likely to survive; then it would further illustrate wise provision in the laws of nature, for the undue increase of this destructive species of insect. Let the cause of this spasmodical decrease be what it may, it must be concluded, that this partial local disappearance is not to be relied upon as permanent, when the fact is apparent that the depredations of the canker worm extend over a greater area of territory than fifty years ago.

Having casually glanced at some of the natural causes that have tended to keep the canker-worm in check, reference may now be made to some of the many proposed remedies recommended as the most effectual in the larvæ stage, of which may be named: Dusting the tree, while the dew is on, with lime and ashes, arsenic and Paris green. Lime and ashes cannot have much effect, while the use of poisonous preparations are very dangerous to the person making the application; besides, at the same time killing some of its insect foes, as well as injuring our good friends, the birds, which prey upon the larvæ. Jarring the tree, as recommended by Prof. RILEY, causing the worms to spin down, and by swinging a stick, could be made more expeditious

* Darwin's Descent of Man, Vol. 1, p. 394.

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by placing a slit sheet under the tree, as recommended for the curculio, and immersing the sheet containing the worms in a vessel of hot water. These remedies being either dangerous to use, or only partial in effect, have prompted the recommendation of numerous contrivances for the purpose of preventing the wingless female ascending the tree, which she instinctively seeks, for the purpose of depositing her eggs. The various kinds of troughs, for encircling the tree, to be filled with any substance that will remain in a semi-fluid state, which will either drown or prevent the ascension of the female, if ever so effective, are too expensive, and require so much care and time in applying, that they will not be generally adopted, so long as dear interest upon capital, and high priced labor are maintained. Professor RILEY recommends refuse sorghum molasses, which can be applied directly upon the bark, without injury to the tree; and Mr. MANNING advises the use of cheap printer's ink, on a band of strong paper, to be wrapped around the tree. In this case the tree should be freed from moss and bark, so that the paper band may be closely fastened, otherwise the female might accomplish her purpose by crawling through the interspaces.

Late fall plowing is also considered efficacious in disturbing and exposing the chrysalises to the extremes of cold and heat, with alternate excess of dryness and moisture, which may enduce mould, decay, attacks of birds,* and perhaps the premature emergence of the moth, and thereby rendering it liable to destruction, and by various other causes, before they could accomplish their purposes during the inclement season of the year.

In some districts in France, millions of nocturnal moths are annually destroyed bv means of lights placed in the vineyards in the night, and Dr. Wallace states that by similar united action in infested districts, their numbers may be materially reduced.

That some steps will have to be taken to arrest the progress of the canker worm is evident, as in the June, 1872, I found hundreds of orchards in Illinois, in the vicinity of Belvidere, Caledonia, and Roscoe, also orchards and parts of orchards in the southeast part of Rock, and the southwest corner of Walworth

* Riley's 2d Report, p. 102.

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counties in this state, which were partially and in most instances wholly defoliated by these pests.

In collating these theories and facts, in regard to one of the most injurious insects which are so detrimental to the labors of the agriculturist and horticulturist, with the inferences and opinions advanced, is for the purpose of directing attention to the annual damage which is inflicted upon the United States by the various species as estimated by Prof. RILEY* "at not less than three hundred millions of dollars," and that several millions of this amount are represented in the damage caused by the canker worm; and further, that there is a general want of information as to distinguishing the different species of injurious insects and their habits, and in relation to the damages inflicted and the proper remedies to be applied to prevent their increase, and as to avoiding the destruction of their "cannibal and parasitic foes," and as to what insectiverous birds should be preserved. The lack of information upon these points is the result of various causes.

1st. Economic entomology is not taught in our common schools, and that the number of professional entomologists resulting from our higher schools, our universities and agricultural colleges, is few in comparison with those who adopt the other professions.

2d. Works treating upon the subject of entomology are rarely to be found in book stores, and if thus accessible, by the use of scientific terms and the high price for this class of books, place them beyond the comprehension and means of a majority of those who would be the most directly benefited by the information to be derived therefrom.

3d. That so long as any of the more injurious insects are only heard of, as existing in some distant locality, those persons engaged in tilling the soil, having no personal knowledge of their depredations, and consequent damages, do not consider their present interests endangered, hence they will not be interested in taking the necessary precautionary steps to prevent their introduction into their immediate vicinity, or on their own premises.

It must be concluded, that in order to arrest the increase and

* 2d Report, p. 14.

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spread of these insects, it is of vital importance that the public should have practical information upon all those points affecting their interests in this direction.

The beneficial results to be derived, will in a great measure depend upon the means employed in disseminating this knowledge, and the manner in which it is conveyed. If the common school system is made the channel of imparting the proper instruction, no practical result follows, until the youths of the present generation shall arrive at maturity.

Founding professorships of economic entomology in our higher schools, colleges and state university, would be more beneficial, by giving us earlier practical results.

On the score of economy in state expenditures, Dr. LAPHAM's plan of securing the services of some other state entomologist is deserving attention, as this would insure immediate results, and be the means of paving the way for an ultimate provision for the appointment of a state entomologist.

The states of Massachusetts, New York, Illinois and Missouri, and perhaps other states, have provided for such appointments, to whom we are indebted for some of the most valuable reports published, in regard to those insects which are most injurious to economic vegetation; valuable because they are comprehensive in their description of the different species, and their habits, and practical because remedies are proposed, and scientific terms are avoided, or added in parentheses, which enable the ordinary reader to comprehend and become interested in a subject which affects his own and the public welfare.

Knowing as we do the great benefits which the people of those states have derived from the investigations of their entomologists, may we not hope that this state will at an early day, make provision for conferring similar benefits upon the horticultural and agricultural industries of our people.

Mr. J. TINKER, of Clinton, writes in regard to the canker worm; that he knows nothing better to compare them to than to a certain political party. Both tax us more than we are able to bear, and thinks a liberal dose of arsenic in both cases would do them good.

The best remedy he has found for the canker worm is a

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solution of arsenic, at the rate of one pound to forty gallons of water. Apply with force pump, and sprinkle when the worms are about half grown. One gallon will do an average sized tree. Has had no experience in fighting the Codlin moth.

Mr. ——. In England they rake up all the leaves and rubbish they can get, and place them to the windward side of the trees, where they are burned, and the smoke thoroughly drives them all away. Cannot think of any reason why it should not do the same in this country.

Adjourned to afternoon.

HISTORICAL ROOMS, Thursday, P. M.

TREASURER'S REPORT.

The Treasurer, G. A. MASON, presented his report of the receipts and disbursements for 1872, as follows:

RECEIPTS.

1872.		
Feb. 9.	Balance on hand last report	598 21
Feb. 10.	Received for memberships of Willey	37 00
1873.		
Feb. 4.	Received for memberships of Willey	18 00
Feb. 4.	From State Agricultural Society	231 50
Feb. 4.	From interest	17 93
	Total	902 64

EXPENDITURE.

1872.		
Feb. 9.	Paid voucher, No. 50, to D. B. Wier	30 90
	51, to G. W. Minier	28 20
	52, to Janitor	2 00
	53, to O. S. Willey	100 00
	54, to P. B. Parsons and Co	21 00
	54½, to C. V. Riley	11 00
	55, to C. E. Bross	6 65
	56, to H. T. Williams	15 40
May	57, to Miss Camp	5 00
June	58, to Seifert and Lawton	75 25
	59, to Post Master	24 00
Oct.	60, to O. S. Willey, postage	8 00
Jan. 27. 1873	61, to O. S. Willey, postage and exp.	26 97
	Balance in treasury	548 27
		902 64

Respectfully submitted,

GEO. A. MASON, *Treasurer.*

Madison, Feb. 6, 1873.

Report was referred to the proper committee.

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APPROPRIATION TO SECRETARY.

Mr. TUTTLE moved that the society appropriate one hundred dollars to the Secretary. Carried.

BUSINESS FOR THURSDAY EVENING.

Messrs. F. S. LAWRENCE, C. H. GREENMAN and J. M. SMITH were appointed a committee to report order of business for this evening.

ELECTION OF OFFICERS.

The society proceeded to the election of officers, in accordance with the resolution of this morning.

Secretary WILLEY remarked that as he had held the office of secretary since 1860, with the exception of two years, and continuously since 1866, it might be supposed that he was a candidate for re-election; but this was not so. The nominal sum that was paid to the secretary was no object for the amount of work that was required of him, though all the society could afford to pay, and his time was so fully occupied with his own business that, after so many years of service, there was no longer any ambition in that direction; said he would take this occasion to express his thankfulness to the members of the society for the very generous forbearance they had always borne towards him in his shortcomings, and wished the society a long life of prosperity and usefulness.

By ballot, the result was:

President—J. S. STICKNEY, Wauwatosa.
Vice President—A. G. TUTTLE, Baraboo.
Recording Secretary—G. E. MORROW, Madison.
Corresponding Secretary—G. J. KELLOGG, Janesville.
Treasurer—G. A. MASON, Madison.

EXECUTIVE COMMITTEE.

J. M. SMITH, Green Bay.
Hon. M. ANDERSON, Cross Plains.
H. M. THOMPSON, St. Francis.

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A paper was next read on

ADAPTATION.

BY J. C. PLUMB, MILTON.

Order, Nature's first law, is a trite old saying, as expressive in horticulture as in any other department of natural science.

The "*eternal fitness*" of plant life to certain natural conditions, is a law so fixed, that no one can safely ignore its mandates. But the lines of demarkation are often so obscure, that we stop not at the verge of *adaptation*, but in our desire to possess ourselves of the fruit of "every tree of the garden," we have presumed too much upon the self-adjusting powers of a bountiful nature—trespassed upon her laws, and felt her penalties.

The practical operation of this law of adaptation and its application to the Pomology and Flora of our country, has been the life work of the DOWNINGS, WILDER and WARDER, THOMAS and KENNICOT, and is yet the central thought of an army of regulars and volunteers, east and west, through the length and breadth of our wide domain, and yet in no time, and in no place has this subject been so prominent as in our Northwest.

Here is the most diligent inquiry, is it hardy? is it fruitful? is it adapted to my location? An affirmative answer, well attested by combined experience, brings a host of eager inquiries for the variety, be it old or new.

In considering this subject, I do not propose to give a scientific homily, but to point out the main conditions which go to make up the sum of the commandments of this law of adaptation.

They are based upon three fundamental principles and necessities of vegetable life, viz.: VITALITY, NUTRITION, DEVELOPMENT.

1st. We need a strong, vital force in our plants, that pushing, aggressive nature that will outlive neglect and privation; that reaches wide and deep for its food; that does not sink under mispruning or neglect of culture; will survive the attacks of

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predatory insects or cryptogamic diseases; that will endure the remarkable extremes of our temperature, and even perfect itself in the creamy soils of the west, so as to endure our torrid summers and frigid winters.

The conditions of our climate and soil are an inheritance we may not quickly modify or change, and we need a strong native vigor in our trees to meet and trample over them.

The second primary necessity—*nutrition*—opens a wide field for investigation, but I will now consider, not "how plants feed," but how to feed them, so as to best continue their vital force up to and into a perfect development. Suitable food is as necessary to a vegetable growth as to healthy animal life, and herein is a rich field for research and experiment. Too much of our trouble is charged to climate.

No finer climate exists for developing firmness of structure and "hardiness," than this, our breezy northwest, and it is more a marvel that the apricot and peach can be so grown here that they will survive forty below zero, than that the hardiest of our apples and pears do sometimes kill at twenty to forty degrees higher temperature.

The climate of Dane county does not change materially from year to year. The same mean summer or winter, or annual temperature continues with little variation from year to year in any given locality. But reverses do come to the tree-grower in most unceremonious and unexpected ways, and it has all been charged to climate. Here is injustice, and I propose to transfer some of the charges from the account of *Jack Frost* to that of *Miss Nutrition*, and in journalizing the items, I find it stands about thus:

Too much vegetable mold in the soil, 10. Too much water in the soil in spring, 5. Total non-culture in spring and early summer, 5. Robbing the tree of food in summer by crops of grain and grass, 5. Too much culture in autumn, 10. Heavy midsummer pruning, 10. Total, fifty per cent. of all our troubles chargeable to *Miss Nutrition*, and justly charged, as seriously retarding, or utterly preventing the development of that complete structural preparation for the hardships of winter.

Add to this the effect of predacious insects, and other inci-

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dental and accidental causes, which aside from *climate* seriously affect the health and development of our fruit trees, all of which we may hope to avoid, and then with some possible amelioration of climate we may secure by special location, soil, culture and protection with a judicious selection of varieties, and a large share of our difficulties in fruit growing will have passed away as a troubled dream, and we will follow the law of *adaptation*, securely and safely.

How shall we learn the lessons; how know the best conditions of *constitutional vigor; of soil and culture; of pruning and special protection; of fruitfulness and keeping qualities? By experiment and observation;* by carefully noting results, and as carefully heeding the lessons of the past.

The fruit grower of Wisconsin whose experience here dates back to 1855–6, may claim to have discovered a "new world" of trial in horticulture; the discovery of which was preceded by bright visions of fairest of fruit of less frigid climes, but in the possession of which we have experienced many hardships. But let us rejoice in our redemption from the "wilderness," and resolutely and intelligently conform our practice to the perfect law of adaptation.

PRUNING AND CULTIVATION.

Mr. TUTTLE would prune young trees in summer, older or bearing trees in March. The bearing tree does not require much pruning, as its growth is retarded by its fruitfulness. Summer pruning checks growth.

J. M. SMITH—At the east, his father always cultivates his orchard with some crop, and has been very successful.

President STICKNEY—A crop of small fruits, not strawberries, planted with caution not too close to the trees, is perhaps the most profitable.

COMMITTEE ON TREASURER'S REPORT.

Your committee, to whom was referred the report of the treasurer, have had the same under consideration and find it correct, and would respectfully recommend that it be accepted.

A. N. SEYMOUR,
E. W. DANIELS,
H. M. THOMPSON,
Committee.

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Prof. DANIELLS extended a cordial invitation to the members of the society to visit the agricultural department of the state university at any time when convenient, and in answer to a question as to the orchard planted a few years ago, said it was set mainly on a northern slope, facing to the lake. The balance were on the south side of the same ridge. The former seem to be doing very much the best.

MARKET GARDENING.

BY J. M. SMITH, GREEN BAY.

Mr. President, Ladies and Gentlemen: Our first and oldest record regarding the labors of our race is in these words: "And the Lord, God, took the man and put him into the Garden of Eden, to dress and to keep it." This command is a very short as well as a very general one; yet it certainly implies that the garden should be kept in order. It was to be their home, and it certainly should not be allowed to become a disagreeable or an unsightly place. Our race was then in its infancy, and the reasonable expectation would be, that we should improve, and that succeeding ages should *perfect* what was then instituted as the first labors of our race. But has this been the case? I fear not. Whatever may be said with regard to the improvements in some of the sciences and arts, the science of gardening, especially in the great west and northwest, can only and truly be said to be in its infancy. Probably not a single person in this convention who has reached twenty-five years, has failed to notice, time and again, the place on the farm that is denominated a garden, instead of being as it should be, a place of both beauty and profit, one of the most, if not the most unsightly and disagreeable spots upon the farm. Here it may be asked, would you have every man a gardener? Certainly, I would have every cultivator of the soil devote a portion of it to a garden. But would you have every cultivator become a market gardener? The answer to this question brings me to the main subject upon which you have invited me to address you to-day. And the true answer to it is one that

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cannot be found in any books upon gardening that I have ever seen. They are mostly, if not all of them, written by eastern men, whose situation and circumstances are so different from ours that he who follows them, indiscriminately, will almost certainly be ruined. We must remember that at the East there is a tendency to a deficiency in the supply of food, and that it is particularly so in all of the large cities, near which most of the market gardening is done, while at the West and Northwest the tendency, with but few very exceptions, is in precisely the opposite direction; hence the very first question to be settled in considering this subject is, have you a market for your crops when they are raised? If yes, then, have you a soil and location suitable for the purpose? A light sandy loam is perhaps the best of all soils for this purpose. You can raise as large crops upon a rich heavy loam, with a clay subsoil, as you can upon a light, sandy loam, and perhaps with less manure, but if you are upon a heavy loam and your competitor upon a light soil, though you may be equally good as cultivators, his soil will give him from one to two weeks the advantage in time. This, of course, not only gives him the high prices for the early crops, but it gives him the control of the market. Hence your success is impossible, though you may have equal advantages with him in every other respect.

Let me give you a single practical illustration of this. A number of years since, I planted my early cucumbers in a very favorable spot, and cultivated them to the best of my ability. The result was a very early, as well as a fine crop of them. I put the price at 37½ cents per dozen, which was low enough to drive the southern ones out of the market, and as no other gardener about town had any, I had the market entirely to myself. This lasted about ten or twelve days, when some three or four other growers brought in their first picking upon the same morning. The price fell from 37½ cents to 9 cents that morning, and in two or three days they were not worth 25 cents per bushel. The result was, I made a nice profit upon my crop, while I think none of the other growers realized sufficient for theirs to pay for marketing them.

I might produce many such illustrations, but this one is sufficient for our present purpose.

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Another very important consideration is the location. It is far better to pay a good round price for land within one mile of the market, than to have the same kind of land given to you two miles away. For instance, some years since a young friend of mine commenced business as a gardener and a fruit grower. He was situated upon the same road that I am, but about twice the distance, or 2½ miles from the business portion of our city. He laid out a considerable sum of money in his preparations. He was a good grower, and an honorable young man, and I hoped to see him do well. He followed the business for two or three years, but he never seemed able to find a good market for his crops, and they were almost constantly a drug upon his hands, while my crops were always sold at a fair price. At length he came to me one day and said, "I am going out of vegetable growing entirely." "Why so?" I asked. "Well," said he, "your location gives you such an advantage, that I cannot compete with you. You can be in market a little earlier than I can, and what is still worse, a merchant or his clerk will never drive by your garden and come to mine, unless you happen to be out of the things he needs. The result is, that you control the market, and I can only get such orders as you cannot, or do not choose to fill." And this was true, though I had never by any word, or act of mine, made the least effort to crowd him out of the market. Nor is this all. The difference of only one mile in distance will make a vast difference in the team work during the year. If you have a good sized garden, say of seven or eight acres, you will probably need to average two trips per day for nearly or quite 300 days in the year. This, of course, includes the hauling of manure into your garden as well as marketing your crops. Here, then, is a difference of 1,200 miles in one year's driving. Hence, my advice is, pay a large price for land near your market, rather than take land as a gift three or four miles away.

Now we come to the business of planting and cultivation. I will take it for granted that you are provided with at least 10 cords of good manure for each acre that you propose to cultivate; and if you have 15 cords per acre, all the better. I know that some farmers will persist in farming without manure, but I

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am going to try and believe that no one will be so silly as to attempt gardening without a good supply of it on hand.

Before going farther, let me give one general rule for manuring, which my own experience has shown me to be the best of any that I have ever tried. It is as follows: Spread about one-half of what you design for a given portion of land upon the top of the ground and for this take the coarsest part of the manure and plow it under. Spread the other half upon the top of the ground after plowing, drag it in with a fine tooth harrow. After this it will be necessary to rake the whole ground over with hand rakes. I lay this down not as an invariable rule, but as a general one, which of course has its exceptions.

Now comes the selection of seeds, and if there is any thing more utterly bewildering to a beginner than this, I am sure that I do not know what it is. For instance, I have one volume in my library in which there are 25 varieties of onions enumerated, 34 of potatoes, 34 of squashes, 40 of beets, 42 of tomatoes, 50 of cucumbers, 54 of cabbages, 56 of turnips, 58 of corn, 84 of lettuce, 108 of beans, 115 of peas, and so on through the whole list. There is a list of twelve of our standard garden vegetables, and 700 varieties of seed to select from. Nor is this all. Not a year passes by but new varieties of each of these and many other kinds are introduced with an almost innumerable host of circulars, that would lead us to believe that we were upon the eve of some great revolution in vegetable and fruit growing.

If you attempt to introduce *all* the new kinds and varieties that are recommended to you, ruin is inevitable. Upon the other hand, if you ignore all of them, you will soon find yourself lagging behind the age in improvements. Hence you perceive, that to make a good selection will require all of your good sense as well as your experience, and if you succeed then without making any mistakes, I have only to say that you will be more fortunate than I have ever been in this feature of the business.

I am tempted here to give you a list of a few of our most prominent vegetables that have done the best with me, though it is very possible that some of them may not be the best for all parts of the state. For early onions, the common top or bunch onions: for late or main crop, the Wethersfield, Early Red Globe

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and the Yellow Danvers, the first named being the most hardy and the best keepers. Tomatoes: Early crop, the Early York; for late or main crop, the Tilden and the Trophy. Early cabbage, the Jersey Wakefield: for late crop, the Bergen Drumhead, if you have a heavy soil. If a light one, the Winningstadt. Early potatoes, Early Rose; late crop, the Peerless. Corn: Crosby's Early and Stowell's Evergreen for late crop. Bush beans, the Early Valentine. Peas: First crop, the Early Kent; late, the Champion of England. For fall squash, the Turban or the Boston Marrow; for winter, the Hubbard. Cucumbers, Early Frame and White Spine. Beets: The Bassano and the Egyptian for early crop, and the Blood Turnip for late crop. Strawberries: Wilson's Albany Seedling.

The above is of course a very limited assortment of seeds, and while they are standard varieties, I by no means confine myself to them, but am constantly experimenting with new varieties; still I would guard you against putting too much confidence in the representations of those who have new varieties to sell.

Well, we will suppose that we have our beds nicely prepared, with the alleys so made that they will not only carry all the surplus water off the beds, but so arranged that they will carry it entirely from the garden. No matter how early in the spring it is, if your ground is in good condition to work, you may begin planting, but plant only those kinds that will not be injured by the late spring frosts. The ground may be frozen an inch deep after peas and onions are up, without their being injured. Beets, parsnips, carrots, radishes, turnips, as well as some other plants, will endure an ordinary spring frost without injury, while beans, tomatoes, egg plant, melons, cucumbers, sweet potatoes and some others, are very sensitive to cold, and will sometimes become so chilled by the cold air without any frost, that they will never entirely recover from it.

Putting the seeds in the ground is a small job, compared with what it was years ago. A good boy, 15 or 16 years old, with a good Harrington or Comstock seed sower, will sow an acre of ground in a day with the small seeds, and will do the work better than twenty men will do the same work by hand. Upon my light soil I sow the small seeds about an inch in depth, and of

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onion seed from 3½ to 4 pounds per acre; the rows 14 inches apart; early carrots and radishes, 12 inches; beets, 16 inches; parsnips, 18 inches between the rows, and with all of them we regulate the machine so that it will drop from one to two seeds per inch in the rows, as you will find it much easier to destroy some of the young plants, than to fill the vacancies if there are not enough. Peas should be among the first of seeds in the ground. The same may be said of onions, not only for the early ones, but for the late or main crop. With regard to this crop, there are three things that are absolute necessities; and I have never yet seen what I call a good crop of onions where either of the three had been neglected. The first of these is very rich ground, the second is to get them in very early, so that they may have the cool, damp weather of spring to get started; the last requisite is thorough cultivation, and this, too, at the right time. I consider the onion crop about as sure as any crop I raise, if the conditions necessary for a good crop are complied with, but, if they are not, complete failure is an almost absolute certainty. By the time these hardy, and half hardy crops are in the ground, it will be late enough to plant early potatoes and put out your early cabbage, for I am taking it for granted that you have a good set of hot-beds, or else, what is still better, a hot-house, where you have been getting a fine lot of cabbage, cauliflower and tomato plants, as well as other things, ready for the open ground as soon as the season will permit. And here let me say, that when your cabbage does not head well, four-fifths of the time, it is simply because the soil is not strong enough to bring forward a full crop. It is possible to make a piece of land too rich for potatoes, but I have never seen a crop of cabbages injured in that way, and never expect to. Hence, don't spare the manure upon your cabbage ground. Tomatoes, egg-plant, peppers and sweet potatoes should not be put out until the ground has become warm and the spring frosts are over.

But amid the hurry and bustle of planting, you must not forget nor neglect to care for your strawberries. If you have not a bed of them, put in a piece of ground at once with the Wilson. If you wish to experiment, do so, but make these your standard, until you are sure of something better. If you have

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a piece already in, the winter covering must be taken off, and the beds thoroughly cleaned out. Don't leave a thing except the plants. After this is done, put on a coat of well rotted manure, or what is still better, if you can get it, ashes. If they are unleached, at the rate of about 150 bushels per acre. If leached, twice the amount.

Your tomatoes for late crop, peppers and melons, will be about the last things put in for the first crop; for you must remember that you are not a successful gardener until you can double crop nearly your whole ground every season. And you must be bearing this in mind, and be preparing for it all the spring. But by the time, and probably before your first crops are all in the ground, the seeds first put in will require your care and cultivation. In the mean time, if you have a good asparagus bed, your market wagon has had to be put upon its daily trips. And now comes a season of unceasing care and labor. Not a day, nor an hour, should be lost. In the highly manured condition of your soil, the weeds come up literally by the million. They must not only be destroyed, but the young plants must be cultivated, to improve and hurry them on for the early market. If it rains, there are sure to be plants to transplant. If it pours down, you will still find it necessary to be on hand, and watch your beds and see that the surplus waters of the falling flood are immediately carried off, and that your beds are made ready for work again at the earliest moment. To be sparing of care or labor now is ruinous, even if your work up to this time has been ever so well done. And many times after a long day of twelve or thirteen hours' labor, your market man comes home with an order, or a letter comes with an order for so much of this, or that, to go upon the first train or the first boat in the morning. Tired and weary as you are, you must go back to the garden, and fill the orders, or soon find your business sadly injured. Do not think me drawing a fancy sketch, for I remember well, one week, two years since, when from four o'clock in the morning till eleven at night, some if not all of my sons were in motion. This was of course only for a few days. But from the first of May to the middle of August, you will find long days the rule, not the exception.

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From the middle of June to the 10th or 15th of August, comes the additional work of getting in the second crops. The varieties of the second are not so great as those of the first one. The last of June or first of July, the Early Horn carrots should be sown between the rows of your black seed onions. If your ground is in the right condition, and the weather favorable, they will come on, and by the time they need the ground, the onions will be ripe and they may be gathered, and the whole ground given to the carrots. But sometimes at this season of the year, the dry weather and a burning sun together will kill the young plants after they are up. Such was my case last season, but after I found that the carrots would be nearly or quite a failure, I sowed the beds with turnip seed, and the result was, a fair crop of as pretty turnips for table use as I ever saw. In June, the radishes, lettuce, etc., are getting out of the way and making room for celery and late beets, as well as rutabagas, though I think a better way to raise these two last named crops, is to sow the seeds in a bed and then transplant them. Let me illustrate this. Last season, I intended to raise cabbage after my early potatoes, but before I had the ground all set out, my cabbage plants gave out, and I concluded to fill up the ground with rutabagas and beets. It was nearly or quite the first of August, and the weather was very dry, as well as very hot. But there was no time to spare, and the plants were set out. They were set twelve inches apart each way, and although they were well watered, for a time they looked like almost anything, more than what they were intended for, crops of beets and rutabagas. But they were well cared for and they soon started.

The first of November showed as nice a crop of fair sized table roots, as I ever saw. A neighbor, who had seen them when they were put out, and a few days afterward, came to see the crop while we were gathering them. He looked at them; "well," said he, "that beats all; and did you expect a crop when you had the plants set out?" Of course I did, or I should not have had it done. Said he—"when I saw your boys putting in those plants, I told my wife that JOHN M. SMITH is good at making things grow, but if he gets a crop there, he is a smarter man than I take him for." But there was no secret about it; you can

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do the same thing almost anywhere in the state. Put the ground in good condition in the spring, and plant Early Rose potatoes; cultivate well and thoroughly, and in July you have a good crop of potatoes. Take them off, plow under the tops and some manure along with them, have good thrifty plants to put in, and then care for them, and the first of November, harvest a crop of beets, rutabagas or cabbage. Simply a case of good cultivation during the season, nothing more and nothing less. As a general rule, in the latitude of Green Bay, it is safe to set the large drumhead varieties of cabbage the first, but not later than the tenth of July. Celery not later than the 15th, and have a good crop. It is safe to set the Winningstadt cabbage till August first. The blood turnip, beet and rutabaga may also be set at this time and realize good crops. Flat turnips may be sown safely till the 10th of August, and get a good crop for table use. It may be said with regard to beets, turnips, rutabagas and cabbage for winter use, the later they are grown, provided they get a good fair growth, the better the quality, and the better they keep through the winter. A word about setting out cabbage plants. The Jersey Wakefield will do nicely and head well, at 18 inches apart each way; the Winningstadt at 20. Most of the drumhead varieties should be 24 inches apart, while the Mammoth, Marblehead and Drumhead should be at least three feet apart each way. It is utterly useless to attempt to raise the last named except upon very rich ground; but when the conditions necessary for a good crop of it are complied with, it will produce an almost marvelous crop, and the heads will be of a very good quality, still, I think it can hardly be said to be a profitable crop for general cultivation.

A few words with regard to an asparagus bed. Your garden will never be a complete one without a good bed of asparagus. The objections to it are, that it is a very expensive crop to get started, and that it takes four or five years from the first sowing of the seed, before you can realize a full crop. But if you have a large element of eastern people among your customers, you will find it among your most profitable crops, and after it once gets to bearing it is not an expensive one to care for, but yields its annual crop with an almost absolute certainty, and that

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too at a time in the spring when your expenses are very heavy, and you will have but little coming in to meet them.

The new variety named Conover's Collassal, seems really to be an improvment upon the old kinds. The seed should be sown in a bed prepared the same as for onions, and sown early in the spring. Let it grow here the first season. When the plants are one year old, prepare your permanent bed, and be sure that you make it very rich. I would not put out a bed of an acre with less than 75 loads of good manure, and if 100 are put on, all the better. Make the rows three feet apart. I take a shovel plow and make the furrows about five inches deep, then put the plants in the furrows one to every 16 or 18 inches, spread out the roots in as near their natural position as possible; fill the furrow and pack down the earth somewhat over the plants, if your soil is a light one, level off your bed nicely, and your bed is made. This should be done early in the spring, and in about a month, the plants will begin to show themselves above the ground, which should be kept perfectly clean during the season. Early the next spring cut off all the old tops close to the ground, and put another coat of manure over it and dig it under, though you must be very careful not to dig deep enough to injure the roots of the plants, which by this time have filled nearly the whole gronnd after you get, say four inches deep. After your manure is dug under, rake off your bed nicely, or if you will improve it still more, before raking, sow on it the best quality of superphosphate that you can get, at the rate of say 500 pounds per acre, before you rake it. About the first of May nice purple shoots will begin to show themselves above ground, and you may begin to cut, though you must do it very sparingly this season, or you will injure your beautiful bed for many years to come. You are now at the beginning of the third year, and you will get your first returns. The bed must be kept clear of weeds, and each succeeding spring give it a good coat of manure, and work it in as I have directed. The fourth season, you may realize some profit from it, and the fifth, a full crop. From this time on, you may expect an annual crop, as well as a good profit from it for the balance of your life, if you will continue to care for it. There is a bed in my father's garden, which father has

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told me was there when he was a little boy 7 or 8 years old, and he is now in his 83d year.

The friends of Conover's Collassal have claimed that this variety would produce a crop one year earlier, than the common kinds. My own experience has not proved the assertion to be true, although I think it an improved variety and very cheerfully recommend it for general cultivation.

Let us now turn for a few moments to another branch of the business, viz.: making sales. At this point we are so differently situated from our eastern gardeners, that their books are about worthless to us. The markets of Boston, New York and Philadelphia are so large, that the produce of any one gardener may be thrown upon it at any time, and in almost any quantity that he can produce, and it will produce no perceptible result. If the market is very much depressed, his withholding it will not raise it. If, on the contrary, prices are high, the produce of one garden will not perceptibly depress them. Here, upon the contrary, you will find that it will require all of your care and skill to keep the market from utterly breaking down, and thus making your crops nearly worthless after you have raised them. I am often told that I have a good market, the best one in the state, and so on. Well, I think I have a good market, and yet, for a number of years past, there has been no time during the rush of any particular crops, that I could not have broken down the price so completely that it would have been ruinous, both to myself and others, and very often it has, and I presume will again, require the utmost care to keep from doing it. For instance, one year ago last fall, I had a very large crop of onions, 2,400 bushels. Suppose I had thrown them upon the Green Bay market, what would have been the result? Before the last of them got there they would hardly have paid for hauling to market. In short, some of the dealers anticipated this result, and at least one of the large dealers told me that I would be glad to sell them to him for less than fifty cents per bushel; and another told me that I would receive more for 1,000 bushels than I could for the whole of them.

Now, what should I do? In New York, I could simply have hauled them into the market and received the market price,

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and the amount would not, probably, have changed the price to the amount of one cent per bushel, but that will not do here. Hence, I must know, and keep posted, as to the price of onions in Chicago and Milwaukee, also in Detroit, Cleveland and Buffalo, and the price of freights. These last named cities compete with me in the lake Superior country. With this reliable knowledge I am not in a position to be frightened or deceived by any false information. Then, I put the price just low enough to keep out the southern crop, and kept it so. The result was, that I sold my entire crop at an average of seventy-seven cents per bushel; and the firm that had told me I would be glad to sell them onions for less than fifty cents, paid me eighty cents for some hundreds of bushels before the close of navigation. If I had thrown this large crop upon the market, and sold exclusively for cash on delivery, I have no idea that it would have brought me one-half of what it did actually bring; and I mention it, not to boast of it, but simply to show how much care is necessary in working off a large crop, and that it may be worked off at a profit, when, at the same time, a little neglect or a want of proper information would have turned a nice profit into a heavy loss.

This is only one of many instances that yearly occur with me, and the same things will meet you in nearly or quite every portion of our state. Last season, I put out about 35,000 cabbages If I had thrown one fourth of such a crop upon the Green Bay market, a heavy loss would have been inevitable. But the crop was sold at a fair price, by simply keeping myself posted with regard to prices outside, and using care and common sense. Another point of difference with our eastern gardens is this: You will find it necessary to raise a general assortment of vegetables, while at the east but few of them do that, but confine themselves to a few crops, sometimes to a single one, and often to not more than five or six. Hence you will perceive that *you* will require a more general knowledge of your business than would be necessary at the east. You have already seen how much care you will need in making sales. To sum up this portion of your business, in a few words, your eastern friend needs a larger amount of capital to commence, and carry on the business successfully, than you do. On the other hand, you need a

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more general knowledge of vegetable growing than he does, also more skill in marketing your crops. My rule for selling is this: Always sell when you can get what you know to be a fair price, and a paying one, and not to hold on for very high prices. The result is that I rarely get extravagant prices for any of my crops, and on the other hand, I seldom sell any of them for less than a paying price.

Let us now turn for a few moments to the expenses of running a good sized garden. Here you have the advantage over your eastern friend. While a few, say $3,000 to $5,000 would be a great help to you, still it is possible, as I know by experience, to commence with very little ready money; while at the east, several thousand dollars is an absolute necessity. And the first thing I wish to say upon this point is this. If you have any idea of cheap tillage, and half culture, discard them at once and forever. If your garden contains six acres, better by far to let one half of it grow up with weeds, and thoroughly cultivate the other half than to attempt to cultivate the whole, and only half do it. I shall not deny that a wretched half system, or no system of cultivation, will sometimes result in showing a large crop. A kind Providence has arranged the natural laws of growth as well as the seasons, in such a manner that such will sometimes be the case; but such cases are the exceptions, not the rule.

Whereas you may, and you ought so to cultivate, that large crops will be the rule, not the exception; but to produce this result, you must spend more labor and more money upon an acre of land than is generally given to it. I know very well that insisting upon this plan, I am talking against the tide, and against the almost universal custom of our whole west, and I fear that I shall talk to little purpose upon this point; but, gentlemen, I am in earnest, and I know that I am right. Here I must refer to my own system again. I do not do so for the sake of boasting, but because it has proved a success, not as successful by far as I expect, and intend to make it hereafter, but still a grand success as compared with the system, or rather the entire want of system of the most of those about me.

I have found, and with me the rule has been invariable, not a

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single exception to it, that the more I have spent per acre in cultivation (and in cultivation I include manuring), the greater have been, not only my gross receipts, but the greater has been the net profit per acre. With each succeeding year, I have spent more in cultivating than in any previous one. The invariable result has been, not only a return of the investment, but a larger net profit from the garden than ever before. Last season I cultivated about 14 acres. In the spring I commenced a more thorough and expensive cultivation than ever before. Soon a most terrible drought came on, and lasted till I began to get frightened, and even went so far as to consider the propriety of discharging some of the hands, but concluded to keep on and keep the garden in the best condition possible, so that it should get the full benefit of rain when it did come. I followed out this plan, and when light showers began to come, there was no crust on the ground to be dissolved before the rain could penetrate into the ground, there were but very few weeds to divide the benefits of the rain with the crops.

In a few days, the change seemed almost miraculous. The result of it all was, that although it was one of the dryest seasons ever known in our part of the state, and that in cultivating and marketing 14 acres I spent $3,986, or $284 per acre, yet not only is the balance upon the right side of the ledger, but it is a nicer one than I have ever had before, and I see now that my cultivation during the drought was what saved me; and if I had carried it still farther in the right direction, I should have been hundreds of dollars better off than I was at the close of the season. The cost of manure must vary the cost of your cultivation materially. With our present imperfect knowledge of manures, stable manures will be your standard, with the use of superphosphates, plaster, lime, ashes, and other manures, as your experience and good sense will dictate.

If you can lay down manure in your garden for $4 per cord, you will need at least $50 per acre for manure, and $150 for other expenses, making $200 per acre; and after you have learned how to spend money to the best advantage, I believe that a larger profit may be made by laying out $300 per acre than with less. But I presume by this time, you are asking if

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the expenses are so heavy, what are the profits? For the first year or two, they will be nothing. And if you make it pay expenses, you will do better than I have done with any land that I own. After the second year, if your land does not pay all of its expenses, and taxes, and ten per cent. on $1,000 per acre, there is something wrong somewhere. I have some acres of land that did not pay expenses for two years, but for a number of years past have not failed to pay ten per cent. on at least $2,000 per acre. I expect my whole garden to do more than that in a short time.

At present I am aiming to make my land yield 1,000 bushels of onions per acre, and then a crop of carrots or turnips, or 500 bushels of early potatoes, and then some other late crop; or if in strawberries, 12,800 quarts or 400 bushels per acre, and other crops in about the same proportion. I know that these figures seem large, but I am steadily gaining and nearing my mark; and, gentlemen, if I live, I shall reach it. Do you ask, what then? Well, I do not know where the next mark will be, but certainly a still farther advance. Our best cultivators have as yet but a very slight idea of the capabilities of an acre of land. Do not think me either wild or enthusiastic upon this point. Such is not the case. For many years I have been satisfied of the truth of the above statement, and every year's experience, and experiments, bring with them the arguments that convince me beyond all doubt, of the truth of the statement.

But let us turn for a few moments to the question, what are the inducements for you to become a gardener? Do you wish to become a millionaire? If so, none at all. Do you wish to become suddenly rich? If so, this is no business for you. Are you anxious for a life of indolence and inactivity? Then there is no place for you in the garden. But if you have the conditions about you that will warrant you in going into it, or even if you are in a young and growing place, and can make a beginning, and build up your business as the place grows, and grow up with it; if you are willing to endure its cares and perplexities, and there will be many of them that I have not and cannot enumerate here, you may make a beginning; and if you are a lover of the true, and the pure, and the beautiful; if you love

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to watch the sprouting seed, the opening bud, the growing plant, as day by day, it develops into a thing of beauty, each one true to its kind, and, as the season advances, displaying more and more of that mechanical skill of which you may see so much, but of whose sweet working we know so little; if you can love and admire that chemical process, and who can help admiring it? for, oh, how I have wished and longed to read the secret workings of that wonderful chemical combination in nature's laboratory, that, though as silent as the falling dew, begins with the sprouting seed, and never ceases, day nor night, but works on, and on, with ceaseless, noiseless steps, until it has reproduced a harvest true to its own kind. And, as the season draws to a close, you will see and count up your own mistakes, and they will be many, even though you have worked ever so wisely and ever so well. But here, in this as yet impenetrable secret of nature, there will be no mistakes. The pea has not produced a potato, nor the potato an ear of corn, neither has the corn produced a beet nor a carrot. The tomato seed has not turned to a cabbage, nor the cabbage to a radish. The beautiful, modest, little strawberry plant has not produced a raspberry nor a currant, but each and every one has been true to itself and to the Great Architect, who made the laws that govern one and all of them. Will you love to tend and watch and care for these things of beauty, and help them to do their best? If so, you may become a gardener; and I know of no business in which you can be more happy and contented. In a few years, you will be almost sure to be beyond the necessity of hard labor with your own hands, but will do better to superintend and direct the management of the garden and conduct the experiments which year by year you will find it necessary to make. And as old age draws on, you will find yourself with a modest competence, that will insure you against the many wants that make money a necessity with us. This will probably be the financial result of your life, but in my view of the business, this is far from being the most important view of the matter.

You should be a moral as well as an agricultural educator. By moral I do not mean a teacher of any theological system—

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not even the extreme liberality of liberal Unitarianism upon one hand, nor the doctrine of apostolic succession upon the other. But I can hardly conceive of a real true cultivator and lover of his garden being a licentious profligate, or a drunkard abroad, and both a brute and drunkard at home. The purity and the beauty of your occupation should teach you, that it is easier to become a true and noble man than it is in most other occupations. And your ever bounteous crops should teach you ever to lend a listening ear to the wants of the needy and the suffering.

On the other hand, if you do not do something towards raising and improving the system of cultivation about you, then you have failed in one branch of your business.

You are so situated that you must of necessity raise large crops, or your whole business fails; hence you ought every season to make a series of experiments, all aiming at some definite point which, if it succeeds, will result in a practical improvement in agriculture. You can do this more easily than most farmers could, and can follow it up for a series of years better than they can; for you must ever bear in mind that a single experiment, however successful it may be, is, as a general thing, worth but little. Let me illustrate this by an experiment of my own. Last season I wished to try a number of different kinds of potatoes, with a view of testing their earliness, yield, quality, etc., with certain kinds of manure. Well, what did I prove? Why, simply this: That a certain kind of potato, planted at a certain time in the season, upon a certain kind of a soil, manured thus and so, cultivated in such a manner with just such a season as the last one was, produced potatoes of a splendid quality and at the rate of nearly 500 bushels per acre. Now, what is this experiment worth? Practically, very little, because very few, and possibly not a single person present, could comply with all of the conditions which resulted in that yield. But suppose that I follow up these experiments with that same variety for five years, try them upon different soils, with different manures, at different times of planting, etc., and at the end of five years I find that they have been of uniform good quality, and that the yield has averaged say 400 bushels per acre, I have shown that upon a good soil, and with good cultivation, they

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are a profitable potato; but suppose the yield only averages 100 bushels per acre, I have shown that either they are not a reliable potato, or that, if they are, I don't know how to raise them. Many of your experiments will prove failures to a greater or less extent, and some of them very annoying ones; but you must bear in mind, that when you have made one that is a success, you have not only benefited yourself, but the whole community in which you live. And it surely will be a pleasure to you to know that you have been the means of adding to the wealth as well as the comfort of those about you. If it is not, I hope that you will never enter my profession.

As I have stated in another place, you will ever find nature true to its kind, and your business is simply to assist her, and enable her to do her best. Hence the command to dress the garden and to keep it. And whether upon the garden or the farm, when you have so done your work that your soil is capable of doing no more or no better than it is doing, then you have become a perfect cultivator. Do you ask me, when will that time come? Not in your day, nor in mine. Possibly in the far distant future; for, gentlemen, I have a vast amount of faith in the world's future; not only in that, but in the future of our Northwest, and its reading, thinking, wide-awake, energetic people.

With these brief hints, I must leave the subject. I have endeavored to be plain and practical. I have not intended to hold out any visionary inducements to any one to commence the business. On the other hand, where there is a reasonable prospect of success, I should be sorry to keep any one who had a taste for it from going into it, for it is a pleasant life and a pleasant business to follow. You may not, and probably will not make any great show or mark in the world, and when your life's work is finished, no rattling of drums or booming of cannon will proclaim to the world that you are being laid in your final resting place, but perhaps there will be some poor widow in the company who will say "he taught me how to raise good crops in my little garden, and when they failed he supplied my wants from his own." Perhaps some strong man will say, "I was an orphan, poor, ignorant and friendless; he took me and taught me how to labor and how to cultivate, and made me a man, when but for

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him, I should have been only a worthless, useless thing, both to myself and to others." Perhaps kind neighbors will say as they speak of you, "We cultivate our lands better now, and we raise better crops now than we did, or ever should have done if he had not lived among us." If these things are so, you will not have lived in vain, and you will not fail of your reward.

PRODUCTION OF NEW VARIETIES FROM SEED, TO INSURE HARDINESS.

BY G. P. PEFFER, PEWAUKEE.

Mr. President: As this article is rather a continuation on the same subject in last year's transactions, (page 58), an introductory is not necessary.

To produce or reproduce a variety of any kind of fruit, to keep its identity, (flowers not excepted), the flower bud or flower containing stamens and pistils, or male and female, must be *isolated*, or kept or grown where no other variety of the same species is grown for some distance, otherwise, it may be fertilized by some other variety, and the identity spoiled.

If we desire to artificially multiply, in that case, also, isolation must be had when the flowers are opening, otherwise it is useless. To produce a new variety and improve it, either for hardiness, productiveness or good qualities, etc., each variety must be kept separate; if we undertake to hybridize or cross, especially must the stamens be removed from the pistils, before the flower leaves have opened upon the variety used for the female. Unless it is well done, we cannot be sure what we will get in the new seedling we have been trying to improve by the crossing of varieties. But if the crossing is well done, we can tell to almost a certainty what we will get in our new seedlings, as the selection of the parent plants or trees had been made understandingly, with the desired view to improvements.

There are many men (professional as well as others) that declare that by sowing the seeds of fruit, we can not tell what varieties we will get from them. We don't profess that we can tell, nor anybody else, unless the hybridizing and fertilizing is

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attended to; if the blossoming of an orchard all occurs at the same time, and there are quite a large variety of different sorts, there will not be probably one in ten thousand that will be exactly like the fruit the seed is out of, and why? Nature has provided in fruit trees *a law* that man, as well as animals, should *observe*, and that is, *avoid breeding in and in.* If it were best to do so, nature would not have such a provision made. Now, any close observer has noticed that in any blossom or flower where male and female are in one, the pistils have the shiny liquid ready some time before the stamens have straightened out, and the pollen sacks are ready to distribute the pollen from the same flower; if in cold, damp weather, it may be a whole day, but generally it is an hour or more. If, as said before, there are more varieties of the same species in the vicinity, the pistils will uniformly all be fertilized from adjoining trees before the pollen is ready in the same flower, also, one speck of pollen is enough to fertilize any stigma or embryo seed tube, so that before the males on that tree (or flower) are ready, the females are all fertilized from the pollen of the adjoining trees, especially when there is considerable air stirring.

To illustrate: some fourteen or sixteen years ago, I saved the seeds out of a Westfield Seek-no-further apple, eleven of them grew, and nine have borne fruit, and none identical with the parent apple. The trees and bark, and even the specks on the new wood, also the color, are similar to the parent tree; but the apples all differ. There are seven out of the nine seedling trees, that are sweet apples, one a half crab, and one very passable, good fruit; this appears to be crossed with Dominee, of which a tree stands about forty-four feet to the west of the tree the apple was picked off. A sweet seedling apple tree stands about twenty-eight feet to the northeast, and a Yellow Siberian crab twenty-two feet north, and another Westfield Seek-no-further twenty-two feet south; now, seven out of the nine must have been fertiliezd by the sweet apple on the northeast, one from the crab north, and one from the west. On three trees, the apples are alike in looks, taste and time of ripening; only one out of the three differs in the seeds, in larger size and more in number than the others; the other four sweets only vary

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in size and a few weeks in their ripening. None, however, will keep as long as the mother apple, except the sample before us. Dominee is a good winter apple, but am sorry to say is not as hardy as Westfield; nor is that perfect, as the samples of woods for comparison before us show; (samples of old and new wood of the different varieties are shown to see the effects of our cold winter).

The only variety I know of that reproduces itself, generation after generation, is our wild or native crab, but that don't improve much, as we all know, in the quality or size of its fruit, unless we take the Soulard or Goulard for an exception, but that, it is claimed, is a variety for itself, as much so as a butternut is different from the black walnut. Why the wild, native crab don't sport like other varieties of apples, is described in last years' transactions.

Now, in regard to selecting varieties to train seeds from, that shall be and prove hardy for us, we have the best opportunity offered to us this year, that there probably will be for years to come, as this winter beats 1856 and 1857, also 1863 and 1864 for severity of freezing and thawing; both those years' effects can be seen by cutting off a limb of that age, or older, as the new wood layers are colored in those years where the tree is not perfectly hardy (see samples), also, this years' shoots or lateral buds examine closely, if perfectly sound, they will do to select for the mother stock, and thus we can save time on the old way of reproducing seedlings from seedlings, over and over again, to attain the same end.

We append a list herewith that thus far show no discolor in the end buds of bearing trees, and most any of these varieties named would do to use for the mother stock: Red Astrachan, Duchess of Oldenburg, St. Lawrence, Fameuse, Utters, Ben. Davis, Golden Russet, Willow, Walbridge, Plumb's Cider, Tallman Sweet, Tetofski and other Russian varieties. Alexander, also, would be a good one, as the apple is large and good looking, and the wood not colored in the least; Yellow Bellflower, or any of the Bellflowers, Northern Spy or Rawle's Janet, might be used for the pollen, to insure a good winter fruit.

I have thus chosen the same subject of last year, as we need

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more light on the same, and it is of the utmost importance to raise hardy and good fruit, and to compete with a fair prospect with our more eastern and southern neighbors in the markets, as you all know we can't stand on an even chance with their favorites; so we have to get our own, and the only way to do it, is by raising

NEW IMPROVED SORTS,

which we all can do if we set ourselves about it; *and not only we*, but our boys and girls (as their eyes are better), and if they take an interest in it, can do it better. I want to impress it on all of you, to let your youngsters try it, if you don't yourselves, either on fruits, flowers or berry bushes, or even on vegetables and grains. I think, if we get our present school boys interested in it, they will go faster and further ahead in such matters than we old folks ever think of going; but such are the improvements to be made in all things natural to our calling, either in agriculture or horticulture.

With these hints and information, most any one can raise or produce new, improved varieties of either fruits, flowers or seed grains, etc., as we herewith have given some of our experience in as plain talk as it is in our power to converse and explain.

To sum up, we repeat the essential points as follows:

1st. Select a strong, healthy tree, or plant, that bears the size of fruit or flower you wish, also form of tree or plant, etc., to raise the seed from, and where the pollen sacks are to be removed from just before the flower leaves open.

2d. Select a variety you wish the first improved with, that possesses quality, productiveness, color, and early or lateness of maturity, of which the pollen is to be used on the first named.

3d. If on flowering plants, give plenty of sun if bright colors are desirable, and shade when light ones are wanted, and for different shades, light and dark or bright colors; use very heavy shade, so as not to dry up the pistils until the seeds are formed.

4th. We must be precise, or prompt, in the isolation, as there is the exact point on which the success depends; it is only for a very short time, indeed, that these things have to be attended to, and almost any person with a will can accomplish it.

Adjourned to evening.

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HISTORICAL ROOMS, THURSDAY EVENING.

The increased interest in this meeting is not expressed in any better or more forcible manner, than in the fact of continuing the meetings through this evening, and providing for business for Friday forenoon. The committee on business for the remaining time of the session reported: Floriculture, generally; small fruits, generally, and to include plums and grapes; deciduous trees, and evergreens for ornamental and timber planting.

[Floriculture has been sadly neglected by most of our western settlers. We have taken special pains to make an effort to revive the taste, and by the liberal response of correspondents, have succeeded in obtaining a number of papers, and hope that by their perusal many may be encouraged to improve upon nature's gift, and plant about their rural homes, flowers to gladden the soul and to please the eye, and, above all, to make home more attractive.—EDITOR.]

GREEN-HOUSE AND POT PLANTS.

BY JOSEPH POLLARD, ESQ.,

Gardener of Hon. Alexander Mitchell, Milwaukee.

Green-houses of late years have become so popular, since their skillful erection has become better understood, that we find them in most gardens, no matter how small, if the owners make any pretentions to taste or elegance. Some of them are large enough to demand the constant care of an intelligent gardener, but many are under the management of some lady of the household. It is highly gratifying to notice the noble efforts of many highly cultivated ladies, trying to introduce glass structures for the culture of ornamental plants and flowers. Nearly every one now feels that there is no excuse for the want of a conservatory or green-house of some kind in close proximity to the dwelling house, and the result is, that they are becoming very fashionable, and are as necessary to a complete house as a parlor or dining room. Their necessity being conceded, the question arises, and is often a very perplexing one, where shall the conservatory be erected and how located? for in this climate we often have trouble trying to keep them warm, making perpet-

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ual war against frost in winter, as Jack Frost is the inveterate enemy of a winter garden, and he is only kept at bay by perpetual fire heat during the long winter.

Green-houses or conservatories should be built, if possible, in a warm, sheltered situation, with a south aspect. Every crack and crevice should be well closed. By being very careful in this respect, a great saving of fuel is effected, and a better and steadier temperature is maintained, an even temperature being very necessary to the health of the plants. When fire heat is applied, it should be by flues and hot water pipes, and particular care should be taken to run the flues or pipes as near the coldest part of the conservatory or green house as possible. When fire heat is used, it is very necessary to apply the syringe occasionally in order to keep up a moist atmosphere; for dry fire heat is very injurious to vegetation. On warm, sunny days, with bright sunshine, plants usually dry at the top of the soil first, but it is easily seen when they want water. In severe, cold weather, when strong fire heat is needed the pots of soil dry from the bottom upwards, and syringing the plants at times moistens the top soil, and leads plant admirers often to think the plants are all right, when, in reality the plants are actually suffering for the want of water.

The result of such neglect is certain death. The only remedy for all these evils is to be always on the watch, in order to discover the appearance of wilting of the foliage. When this appears, the plants should have a thorough watering that will show through the bottom of the pots. The water used should be as near the temperature of the house as possible. Another great evil, perhaps the greatest, in the whole course of plant culture, is unskillful watering. Horticultural writers often recommend copious watering for many varieties of plants; which advice I know is unskillfully interpreted by many who have not had experience sufficient to guide them. Many evil results follow, and great caution should be taken against overwatering, for that is one of the principal points in successful plant culture. Water cannot be given to green-house plants without injury, unless the plant shows the want of it, or, in other words, unless the water previously given to them has been absorbed, for water giv-

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en to plants that do not require it, will remain stagnant in the pot, souring the soil, and will soon kill the plants. On the other hand, you will kill the plant by letting it get too dry, and neglecting to water it at the proper time.

I will now name a few green-house plants which are favorites of mine, beginning with the

CAMELIA JAPONICA.

This is a glorious family of plants, and commands the admiration of all lovers of plants, because of its dark green, glossy foliage and glorious flowers. They are easier of culture than the generality of cultivators imagine. The best soil to pot them in is sandy loam and peat, in the proportions of two parts of sandy loam to one part of peat, with a little leaf mould added. They need syringing three or four times a week, according to the weather, avoiding it when in flower. Keep them in a close, moist place while in a growing condition. If the plant is strong and robust, water sparingly, in order to cause a better bud setting, and when you find they have done this, take particular care that none of them suffer from becoming too dry, as that will cause them to cast their buds and fail of flowering. This noble plant flowers freely in a temperature of fifty degrees, in a moist atmosphere.

AZALEAS.

A beautiful tribe of plants, delighting in a soil of two parts of peat and one of loam and considerable sand. If the pots they grow in are well drained and never allowed to become too dry, they will thrive in almost any situation, though they prefer partial shade. I find they do better in a tolerably good exposure to the sun than when too much shaded, as they ripen their wood better, and set more buds and produce larger flowers. But during summer months, they must be plunged to the rim of the pots in the ground, for, otherwise, their fine, hair-like root fibers will receive great injury from exposure to the sun. There is no hard wooded plant requiring so much water during its growing and flowering season as the *Azalea*.

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Azalea.

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ACCACIAS.

Australian plants; very valuable in green-houses, blooming from January to April. Soil should be two parts of loam and one part each of sand and peat; flowers yellow and showy. They delight in a low temperature, and like abundance of water when flowering. Should be in every collection. There are many varieties of accacia.

PELARGONIUM,

(erroneously often called Lady Washington geranium.) What is more beautiful than a well-grown specimen Pelargonium, loaded with its blaze of gaudy colors? There is no plant in the floral kingdom that pays so well for proper care and good culture as the Polargonium, and certainly there is no plant that needs more care to grow it well. It is one of the plants we generally find in every collection in a poor, worthless condition, drawn and spindling—in fact sick. I am certain there is no plant in the floral kingdom that gives more satisfaction and pleasure for good culture than the pelargonium. To propagate this noble plant, I take cuttings as early as possible in June, and put them in six inch pots in a close frame, or if convenient give a little gentle bottom heat. They will be rooted in about a month. I then take them up carefully and pot them in three inch pots, and replace them in the frame until they begin to grow, then admit air, mornings and evenings to harden them. I then pinch off the tops to induce them to make side shoots. When I find the pots well filled with roots, I shift them into six inch pots, giving air night and day, taking care to guard against heavy rains which they dislike very much. I pay particular attention to them down to the first of September, and then shift them into eight inch pots and replace them in the frame, and let them stand there about two weeks, and then commence to stint them for water, giving them none, unless they show signs of suffering. At the approach of frost I house them, taking care to keep them as near the glass as possible, and give them as much air as possible, and water once a week, during the short days. As the days lengthen, I give them a little more

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water. By the middle of March, I put them in ten inch pots, giving plenty of water, and as soon as they begin to show bloom, I water them three times a week with liquid manure, until the buds begin to show color, and about the last week in May, nothing can be found more gorgeous. They are a mass of flame. In potting, I use about two inches of drainage, and on the top of it I place a little moss. The soil used is equal parts of loam and leaf-mould, and a little sand and well rotted cow manure.

Judging from experience, I do not think it exalts plant culture, to think that you have only to pot plants in a little loam and manure, or perhaps in any kind of soil, and then leave them to live or die as they please. As far as my experience goes, to grow plants well requires skill and care. If our florists and skillful cultivators would erect landmarks to show us how to avoid disappointments in plant culture, they would advance the interests of both professional and amateur cultivators, for plant growing is certainly a great labor of love.

FUCHSIAS.

Nothing is more beautiful than the fuchsia. About the middle of February, if you want an early bloom, remove them from the cellar or pit, where they have been in a dormant state. Use the knife freely, and place them in a temperature of forty-five degrees, in the same pots they flowered in the previous summer. Water sparingly until they break leaf buds, then shake out of the pots, and re-pot them in as small pots as possible, being careful not to cramp the roots. When they begin to grow freely, shift into larger pots, and continue shifting as they grow, until you wish them to flower. By cutting freely, you can shape them as you please. By this plan of culture you can have just as stocky and strong plants as you please. Pot in sandy loam and leaf mould, and give abundance of water and light while flowering, avoiding too strong sun heat.

CALLA ETHIOPICA.

The plan I follow in order to secure a successful flowering durthe winter months is: In or about the first week in June, bring your callas to rest by exposing them to the full sun, placing

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Fuchsia.

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them where they are sheltered from rain. Be very careful not to water them. The last week in August, take them out of the pots and shake away all the old soil. Clean the roots of all decayed matter, and particularly all the young shoots or suckers. Pot them in good, strong, rich soil, sandy loam, leaf mold, or very rotten cow manure, exposing them to the full sun, as before, in the open air. Water them freely until such time as the season compels you to house them, and when you take them to the green-house, put them in a sunny place as near the glass as possible, and they will remain compact. This plant deserves a place in every collection for its large, remarkably white flowers. The pots should be well drained and the plants well watered while in a growing state, as the plant will not flower if once suffered to become too dry. It has the wonderful power of discharging the superabundant water from the points of its leaves in drops. It is also suitable for a water plant. It is a native of the Cape of Good Hope, and is commonly called Calla, but its proper name is Richardia Ethiopica. The least frost will kill it. Their principal elements are air, light and moisture, flowering freely in a temperature of 50 degrees. I wish it to be understood that these practical remarks are not for the professional gardener, but intended as landmarks to teach the young cultivator what to do and how to avoid failure.

SCARLET GERANIUMS.

Nothing is more showy in the flower garden or pleasure grounds during the whole summer and autumn months, than beds or masses of the scarlet blooming geranium, of which the old horse shoe geranium is the original type. There are a great number of new and very beautiful sorts, and when they are properly grouped together on the lawn, they make a glorious display. There are few plants more easily grown, or that better repay the care of the cultivator. All the kinds require a light, rich soil, composed of loam, leaf mould or rotten manure and sand. They will root readily without either glass or bottom heat. Gardeners generally take cuttings in autumn months and put them into six inch pots, well drained and filled with sand, and placed in a cold frame. They will be rooted in a month or

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Scarlet Geranium.

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five weeks, and they should be carefully lifted and placed in three inch pots and taken to the green-house, or some sheltered place until they begin to grow. Water occasionally, until such time as the weather compels you to house them. During the winter, they require little water and cool temperature. In March, shift into five inch pots, and when the time comes for bedding, these plants will repay for all labor. As there are many who would be glad to cultivate them who have no green-house in which to keep them, I will mention for the benefit of such, a very simple method which I practice occasionally with great success. As soon as the first frost nips the foliage, I take as many geranium plants as I want, and put them into as small pots as possible, and take them to a dry pit or cellar free from frost. Here they remain dry until spring. When my beds are ready, I cut them to four or five eyes of the collar, and, so far from injuring them, I firmly believe they flower much finer after a winter's rest than when kept in the green-house.

RURAL HOMES.

BY MRS. D. HUNTLEY, APPLETON.

There is a charming loveliness about a rural home, surrounded by trees and shrubs, embellished with vines and flowers, made attractive with delicious fruits, which delight every beholder. The beauty of such homes, and the pleasures of rural life, have long been the subject of song and story, but we who dwell in the country have not caught the inspiration of the song, nor have brought to our firesides the pleasing attractions of which we have so often read. As a people, we do not fail to appreciate the beauty of the floral world, in the quantity of our cut flowers, and in the exquisite arrangement of our floral decorations we greatly excel the English, but they far surpass us in the adornment of their cottages, their beautiful window gardens, and their manner of bringing these refining pleasures to mingle with every day life.

In the haste to accomplish whatever we undertake, for which we Americans have so justly become famous, we look beyond our present enjoyment to some greater good, or what we falsely

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deem some greater pleasure, thinking, when that is attained, we will give thought, time and money to the luxuries and amusements which we know are so desirable. Thus we think and plan for some ideal home, while that in which we live has none of the lovely attractions which nature has given us in such profusion, which are so accessible to all, and which would cultivate in ourselves and our children an increasing taste for more beautiful surroundings in that future home which we hope sometime to make so delightful. In no vocation in life is this more true than that of agriculture, and in none is the mistake greater. To the farmer, who secures to himself a portion of this beautiful earth to call his own, who takes his place as the assistant of nature, to bring from the soil things good, beautiful and excellent, the loss that comes from neglecting to invest *immediately* a small portion of time and income to the adornment of his home with trees and shrubs, with vines and flowers, cannot be estimated. There is a loss which the most avaricious can appreciate when they contrast the cash value of a home made delightful with all that is best and loveliest in nature, with one that has only shelter for its inmates, and the soil beneath their feet. But there is a greater loss of that true enjoyment which ever comes from the association of thought and labor with that which is pure and ennobling, and a loss in the æsthetic culture which we should give our children that will find expression in their labors, and will be felt in coming years when they take up the work we have but just begun.

To these last considerations, farmers do not attach the importance they should, their energies are devoted too exclusively to the hardware of agriculture, while the "jewels of the soil" are forgotten; often the location is not decided, the buildings are not permanent, the resources are limited, or the soil is not ready to plant trees, and for these reasons, there are hundreds of homes to day, without fruit, without flowers, without beauty, when all of these, with a little well directed effort might easily be brought to minister to the happiness of their inmates. While deciding these questions, the farmer forgets the pleasures and benefits that might be gathered, as it were, by the wayside; he forgets that while he is preparing the ground for an extensive

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orchard; a few trees may be purchased, at a trifling cost, and planted wherever they can receive good culture; a little garden of only a few rods, if well cultivated, will be a source of untold pleasure. In the first year of his farm life, he may have all the annual fruits in rich abundance; the second summer, delicious strawberries may supply his table with delicacies; with every coming year, other varieties will afford their delightful fruit; soon the few trees planted will add their golden and rosy apples, and when gathered, will give a pleasure that none know but those who taste fruit of their own planting.

There is a wonderful power in these simple incentives, which none need more than the farmer in his new home; these little things which he may do, without neglecting any imperative duty, will attach him to his work, will educate his tastes; from the trees he has set, he will learn what he does, or does not want; from their situation he will learn where to plant others, and ere long the perplexed question of location becomes settled; but if change is advisable, the enjoyment secured from the culture of his trees and shrubs will ever bring pleasant memories of this transient home, and whatever may be left behind for others, will serve to keep his name in grateful remembrance. The young wife who goes out from the parental roof to some new home in the west, perhaps far from friends and kindred, will find no influence so potent, no pleasure so great, after caring for her loved ones, as that which comes from her garden, her plants, and her flowers.

In the multiplied cares of her farm life, she may think the first summer, she can have none of these "reminders of Eden" to keep her company, never remembering that all the beautiful annuals mature in a single season; that she may have magnificent dahlias, splendid asters, fragrant verbenas and modest violets, to adorn the home in which she has lived but a few short months; the coming spring a little bed of tulips with their gorgeous colors may blossom by her door; one after another, she may add the flowering shrubs, the beautiful roses, and the creeping vines, and while these are blooming around her, she may every where find instructions for simple or elaborate gardens, for costly or inexpensive flowers, plants for running or

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for shady windows. If space is any consideration, suspended from the ceiling in some tasteful hanging basket will grow the dainty smilax or the creeping ivy. If time, which is ever of untold importance to the home worker, is wanting, a simple fernery, which can be arranged in a few hours, will grow for weeks and months without another moment's care, and there the soft green mosses and the graceful ferns will give glimpses of the shady nooks and quiet dells of the forest. Her home may be a simple cabin of logs on the frontier, or the adobe cottage on the prairie, yet the beautiful roses will grow by her door with the same luxuriance, as when trained to some costly lattice. The plants in her window will bloom in their exquisite loveliness, and neither form, nor foliage, fragrance or flower, will be affected by their surroundings. How lovely are these silent messengers of beauty, that come alike to the children of poverty and affluence; every plant has its lesson or its suggestion, every leaf and flower will waken sad or sunny memories, that will linger with us to the end of life.

The home of childhood ever comes up in remembrance, as we gather about us the flowers we there loved best; the very fragrance of the roses and the lilacs, brings to mind friends absent and departed; the snow-drops and the lillies tell us ever of that sweet home; the myrtles, too, we think of as we bound them in the sunny hair of infancy, and we can never forget the delicate white flowers which we placed in the cold fingers of our own loved dead. Who can measure the influence of these gentle teachers, these "smiles of God," which he has given to the dwellers of earth? To those who have contended with many difficulties, and through toilsome years have slowly added the beautiful and the useful to the surroundings of their home, until it has become almost an earthly paradise, there comes an enjoyment, an attachment, that can find no expression in words. In every part, it becomes identified with the loved ones of the household. The very grass that grows beneath their feet was sown by Him who planned and perfected this place of beauty; every shrub, and plant, and tree has been trained by His skillful hand, and under His watchful eye, flowers and fruit have come in their mysterious perfection, from leaf, to bud and blossom,

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and full fruitage. In this dear spot, every object is fraught with tender recollections; here is the delicate plant that was nourished into life; there the choice shrub that was tended with kindest care; here strayed the steps of the first-born among the flowers she loved, and yonder, beneath the shade of some loved tree, played innocent, happy children. Here, too, will be realized the hopes of years, and all of earthly beauty and earthly good, needful for the wants of life, will come *through and with* the abundant productions of this delightful home. For what can we live, for what other purpose can we toil, that will bring us such benefits and pleasures as these? Surely, we will go on with this most noble work. The example of others will inspire us to renewed effort. Florists will not multiply their treasures in vain. Horticulturists have not brought success out of failure to no purpose; our whole wide west will yet be clothed with beauty and excellence, as "with a garment," and first among her sister states shall be our own Wisconsin. Her own peculiar climate shall yield its own peculiar fruit, and beautiful homes, with splendid trees and clustering vines, and fragant flowers shall everywhere adorn her prairies and her woodlands.

On motion, Mrs. D. HUNTLEY was made an honorary member for her zeal in the cause of floriculture, and the very excellent paper just read.

PROSE AND POETRY.

BY H. W. ROBY, MILWAUKEE.

There's prose and poetry, no doubt,
  In everything around;
In mountain peak, in fertile plain,
  And in the depths profound;

In mossy dell, in rocky glen,
  Great leaf, and tiny blade,
Majestic river, purling stream,
  Forest, and everglade;

In sandy beach, in rocky reef,
  In coral-locked lagoon,
In gulf and bay, and cataract,
  Whirlwind and wild monsoon;

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In birds and beasts, and creeping things,
  In flowers, plants, and trees,
In desert sands, and hot simoons,
  And life within the seas;

In all the boundless realm of space,
  In all the stars of night,
And in the sun's effulgent blaze
  Of golden, glorious light.

There's prose or poetry in all
  That human beings do;
In all the interests of life,
  In all that's false or true.

There's prose, and poetry as well,
  In all of honest toil,
Whether we dig for shining gold,
  Or cultivate the soil;

Whether with tongues of eloquence
  We sway our fellow men,
Or, in the sanctum of the press,
  We wield the potent pen;

Whether we strive for human rights
  Amid the clash of arms,
Or tend, with care, our flocks and herds,
  And cultivate our farms;

Whether we dwell upon the land
  Or on the sea, in ships,
Or watch with telescopic glass
  Some long foretold eclipse.

In horticulture, as in art,
  Materials abound
For poets' song, in lofty strain
  Or prosy theme, profound.

The work which gard'ners find to do
  With spades and rakes and hoes,
May well be classed, if classed at all,
  With other kinds of prose.

For when the gard'ning season comes,
  Small rest have they from toil.
"From early morn 'till dewy eve"
  They delve amid the soil.

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They graft their trees and plant their seeds
  In hope of fruit and flowers,
And then they watch the swelling germs
  Through many care-full hours.

Then, when the fruit and flower stalks
  Spring up and grow apace,
Dame Nature sends a horde of weeds
  To overrun the place.

The gard'ner, then, who sees his pets
  Environed by their foes,
Must fight the weeds with might and main.
  What else in that but prose?

But, in the golden autumn-time,
  When summer's heat is o'er,
And luscious fruits are gathered in,
  A rich, and goodly store,

And, when the cider's barreled up,
  And new wine in the vat,
And all the season's toil is past,
  There's poetry in that.

So, too, when in the early spring,
  The hot-bed yields return
In radishes and salads crisp,
  For which we long and yearn;

And when, in early summer's days,
  (The season scarce begun),
Beds of delicious strawberries
  Lie ripening in the sun:

And just as they begin to fail,
  The market is supplied
With blackberries—rich, luscious fruit—
  At once our joy and pride;

And then red raspberries appear,
  The season to prolong,
And then the black, and then the white,
  And so they run along;

Pears, peaches, apricots and plums,
  And all the orchards yield,
And then the melon crop appears,
  And products of the field.

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And lean must be the man, indeed,
  Who would not then grow fat,
With such exquisite toothsomeness,
  And liberty thereat.

And notwithstanding all the prose
  Of culture's weary hours,
There's poetry to overmatch,
  In fruits and fragrant flowers.

So, all in all, life's poetry
  Exceeds its prose, by far,
However much the prosy part
  The poetry may mar.

[It is to be regretted that time did not permit a full and free discussion of the merits and demerits of flowering shrubs, plants and roses, so as to be able to present a list for publication, but this was necessarily cut off. That it may not be so in future is the desire of the secretary and many active members.—EDITOR.]

COMPLIMENTARY.

F. S. LAWRENCE said it was but due to our retiring secretary that we express to him in some way, our appreciation of his untiring sevices for the interests of the society, and offered the following:

Resolved, That this society, recognizing the eminent services of Mr. O. S. WILLEY in the past, and that our present position is due in a great measure to his efforts in its behalf, do hereby tender to him our *thanks*, and that as a partial recompense we hereby elect and constitute him a life member of this organization.

Carried.

Messrs. LAWRENCE, GREENMAN and TUTTLE were appointed a committee to report a list of grapes for general cultivation.

PLUMS.

Mr. J. M. SMITH had good crops of plums when he practiced cooping chickens under or about the trees.

This seemed to be the general testimony and experience of all present.

The List

For continued trial was Lombard, Imperial, Egg, Magnum Bonum, Hinkley (or Miner), Yellow Egg and Eldridge.

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The merits of the Hinkley were very fully discussed, a portion claiming that it was a rampant, strong grower, and never fruited.

Mr. WOODARD spoke of it as having many merits; had seen it in bearing on its native soil, or place of origin, near Galena, and there it was very satisfactory. True, it was a large growing tree, and to this he attributed its barrenness while young. Thought that with age it would fully come up to the claims made for it.

Mr. WATERS confirmed what had been said in favor of the Miner.

GRAPES.

The committee reported for general cultivation, Delaware, Concord, Lindsley, (see cut, page 87), Wilder, Salem, (Rogers, No. 22), Agawam, Janesville, Worden and Enmelan.

There was a unanimity on the first six named. The other three were, however, added without material objection.

MARKETING GRAPES.

All present, who had had experience, condemned the round "grape box" as being unprofitable. This was strongly urged by Messrs. HOILE, PLUMB, GREENMAN, TUTTLE and others.

Mr. TUTTLE said he had gone back to the five pound boxes.

Mr. HOILE and others thought there was nothing equal to the common berry box. There were so many customers who want just about what such a box would hold, and he could realize nearly one-fourth more for grapes put up in this way than in any other. This saved all handling; a box would hold about one pound, and there was no waste by weighing.

KEEPING GRAPES.

Mr. TUTTLE found much difference in the keeping qualities of grapes; some will not keep ten days in good condition. The Concord is of this class. Rogers' grapes will mostly keep well.

Mr. LAWRENCE. Pick your grapes when ripe and dry. Keep them as cool as possible, and they may be kept till April first. We can have grapes from August 10th to April 1st.

Mr. KELLOGG had kept Concords in a cool place till Novem-

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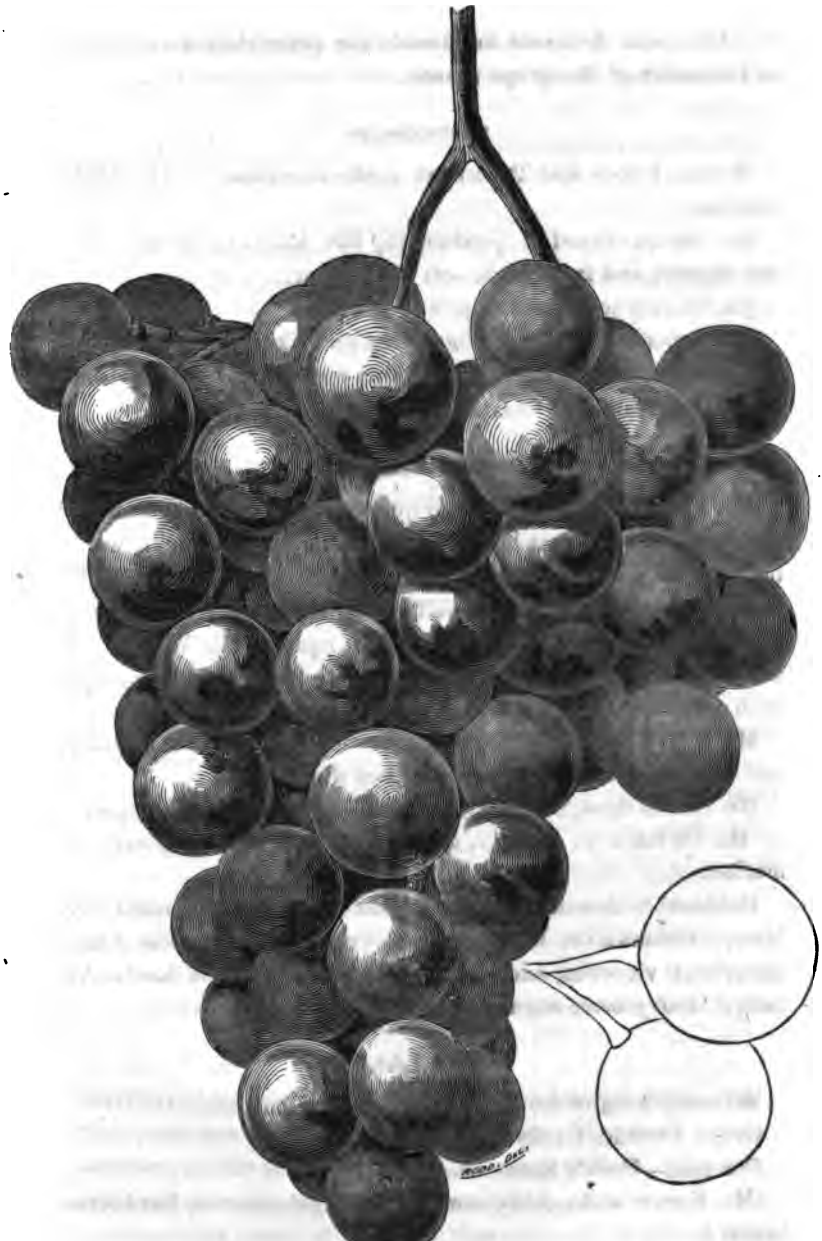

Agawam.—Rogers, No. 15.

[Vine very vigorous, productive; bush large, moderately compact, shouldered; berry large, roundish, dark red or maroon; flesh almost tender, juicy, vinous, with a little of the native aroma; ripens soon after the Concord.]

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ber 8th, and then sold for double the price they would bring in the midst of the grape season.

RASPBERRIES.

Messrs. FELCH and THOMPSON spoke in praise of the Philadelphia.

Mr. SMITH found it productive, but killed to the snow line last winter, and fruit is too soft for market.

Mr. PLUMB could not ship it to market.

Mr. STICKNEY had it for five years and liked it for home use.

Society recommended Philadelphia for family use, Davison's Thornless, Mammoth Cluster for home use and market.

STRAWBERRIES.

Mr. FELCH said, in answer to question, that from one hundred and fifty varieties that had come under his observation, it would be hard to select so few as half a dozen that were specially more worthy than the next half dozen would be ; but for general culture, nothing he had ever seen equaled the Wilson. It was the berry of all others for shipping ; hardy, and *when ripe*, with a little extra allowance of sugar, was not bad to eat.

Mr. SMITH had been cultivating berries for a number of years, and never made anything on any but the Wilson.

Mr. HOILE thought the Green Prolific in every way superior to the Wilson in quality, and fruits well and is good for market.

Robbins' " Arena Seedling " was highly commended by Messrs. GREENMAN, HOILE and TUTTLE. The vine was found hardy and vigorous, and the quality better than Wilson's Albany. Berry more regular, brighter, and a little earlier.

The List.

Wilson's Albany for market and general culture.

Green Prolific, family and near market.

For trial—Peck's Emperor.

(Mr. FELCH said quality same as the Agriculturist, but better bearer.)

Charles Downing, Reed's Late Pine, Victory, Burns' New Pine, Boyden's No. 30, Arena.

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Mr. LAWRENCE found it was as difficult to make a list of strawberries as any other fruit, and perhaps more so. Some varieties succeeded well on the clay soils, and were worthless on the sand. In making a list for a reliable guide, these things should all be considered.

EVERGREENS.

The discussion upon evergreens was animated and instructive. Norway Spruce was recommended as the best evergreen for all purposes.

The List.

For general cultivation—White Pine, Arbor Vitæ, Scotch Pine, Balsam.

Mr. TUTTLE did not like the White Pine, and highly commended the Austrian Pine.

For ornamental planting—Austrian Pine, Hemlock, Siberian, Arbor Vitæ, Red Cedar.

TIMBER CULTURE.

Mr. WOODARD spoke in high praise of the European Larch, as being a very rapid grower, and to leave out of consideration its qualities for durability, and even to admit that it had none, yet it would always be a valuable tree to plant for protection. It was a fact that it was a very durable timber. Its profitableness as growing for market was shown by reference to what had been done in a given time.

President STICKNEY thought, though the European Larch had been over-praised, still let us look at it candidly and in its real value. If it is not the most durable timber, or the most valuable, yet it is a wonderfully rapid grower, and as such, if for no other reason, should be planted.

Mr. TUTTLE said timber planting is one of the most important subjects we can discuss, for the prairies. We should plant timber for protection before we plant our orchards. The fires are doing great damage in northern Wisconsin; keep out the fires and timber grows with great rapidity. In southern Wisconsin we have a greater area covered with timber than twenty years ago.

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B. B. OLDS of Clinton, spoke in praise of the Larch for timber and protection.

The European Larch was recommended for general planting.

Adjourned to Friday, A. M.

HISTORICAL ROOMS,
Friday, A. M., Feb. 7.

The attendance was not so large this morning, many members having left for home and others were in attendance at the agricultural convention.

The committee on

PREMIUM LIST,

Presented their report, which was accepted and adopted.

The whole amount offered for premiums were:

Fruits by professional cultivators	$214 00
Fruits by non-professional cultivators	232 50
Sweepstakes on fruit	22 50
Seedlings	18 00
Summer fruits	60 00
Nursery trees	55 00
Flowers by professional cultivators	134 09
Flowers by non-professional cultivators	139 00
Flowers by professional non-commercial cultivators	53 00
Total of	$928 00

DECIDUOUS TREES.

Mr. J. M. SMITH calls attention to the discrepancy in the elm question. There being a good deal of confusion in the names and varieties, said he had not succeeded in getting hold of as complete a description of them as he would like, but among other notices, there is one in the new American Cyclopedia, vol. VII, page 110, in which the one so much sought after as a shade tree, is called the White or American Elm. Another variety commonly denominated the White or Rock Elm, is there called the Corky White Elm, on account of the branches being sometimes beset with corky ridges. The first named is the one so universally and justly admired as a shade tree. The last named is also a true American tree. It grows to a large size, the trunk usually tall and straight. The top is generally small,

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as compared with the trunk, the branches short, stiff and angular, with none of the graceful appearance of the first named. The bark is rougher and is also much lighter colored. The wood is very firm, fine and straight grained, splits without difficulty, and is also lighter colored than the first.

It seems to me to be unfortunate that both should be called the White Elm, as the lighter colored of the two can hardly by any stretch of imagination be called a beautiful shade tree, and equally unfortunate that one of them should be denominated the American Elm, while both are equally American. In view of these facts I would suggest that our society adopt the name of Spreading White Elm. This would so distinguish it from the other varieties, that I think there could hardly be any confusion hereafter.

The Slippery Elm is a very pretty tree when young, but seldom or never grows to a large size, and is readily distinguished from either of the others. The Brook Elm has smoother bark than any of the others, very dark colored wood, stiff, whip-like branches, and cannot be called either a useful or an ornamental tree.

Mr. TUTTLE thought the Red Elm was a very poor tree, as always when of much size was sure to have more or less dead limbs in the top—named a number of cases that had come under his observation. The white or spreading is very valuable. Never would plant the Slippery Elm.

Mr. PEFFER had worked in timber of all kinds. Red or Slippery elm were far ahead of any other for toughness. Used them for ox yokes; are worthless for shade. The cause of the top dying on Red Elm is done by their over-bearing of seed. White Elm is best for shade. It grows cross-grained, hence seldom or never break. Water Elm is very shaky, caused by having so much water in it and bursts, by freezing, to the heart, and when thawing out is injured still more. White Elm was recommended for farm and street planting, also Green Ash.

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JUDGES OF FRUIT

For the fair in September next, were appointed as follows:

Superintendent—O. S. WILLEY, Madison.

Class 30, *Fruits by Professional Cultivators*—F. S. LAWRENCE, Janesville; F. C. CURTIS, Rocky Run; J. M. SMITH, Green Bay; J. W. PARKS, Dodge's Corners; I. J. HOILE, Oshkosh.

Class 31, *Fruits by Non-Professional Cultivators*—A. G. TUTTLE, Baraboo; H. M. THOMPSON, St. Francis; G. P. PEFFER, Pewaukee; G. J. KELLOGG, Janesville; H. H. GREENMAN, Whitewater.

Class 32—To be appointed at the fair.

Class 33, *Seedlings*—CHARLES WATERS, Viroqua; J. C. PLUMB, Milton; G. P. PEFFER, Pewaukee.

Summer Fruits—Premiums to be awarded by executive committee.

Nursery Trees—I. J. HOILE, Oshkosh; E. B. THOMAS, Dodge's Corners; W. REID, North Prairie.

Class 34, *Flowers by Professional Cultivators*—H. W. ROBY, Milwaukee; Mrs. A. A. BOYCE, Lodi; Mrs. F. S. LAWRENCE, Janesville; MARK DRESSER, Kenosha; DR. RISCH, Milwaukee.

Class 35, *Flowers by Non-Professional Cultivators*—DR. R. A. ROSS, Milwaukee; Miss KATE PEFFER, Pewaukee; Mrs. D. HUNTLEY, Appleton; O. S. WILLEY, Madison.

Class 36, *Flowers by Professional and Non-Commercial Cultivators*—Judges same as Class 35.

Messrs. LAWRENCE, TUTTLE, STICKNEY and WILLEY spoke of the importance of frequently meeting together for discussion. The propriety of meeting during the fair was fully discussed; and, on motion of Mr. LAWRENCE, it was resolved to hold one evening meeting (probably Wednesday) for discussions and reading of a paper, the week of the fair.

KEEPING FRUIT

By freezing was fully explained by CHARLES WATERS, who had been in the habit, for several years, of barreling them up and keeping in shade or as cool as possible till cold weather came on, then opening a trench in the ground large enough to receive the barrels, and covering with about four inches of soil. Leaves them in this condition till spring, or warm weather, or till wanted for use. Then remove to the cellar and thaw gradually. When frost is all out, wipe dry, and they will be found as fresh as when first gathered. Has Fameuse now stored in this manner, and is confident they will come out as good as when first gathered. Had kept Russet and Romanite till June, after wintering in this way.

Mr. TUTTLE. Apples can be kept in this way, but there is

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a vast difference in varieties. Golden Russet is one of the best for this purpose. Referred to the Duchess now on exhibition at this meeting, that has been kept on ice, frozen, or nearly so.

REPORT OF FRUIT COMMITTEE

Of the fruit on exhibition.

We find on exhibition by Mr. PEFFER, a large variety of apples mostly seedlings, among them the Pewaukee, also, his number 17 or "Peffer's Winter," in good condition; No. 14, rather dry; No. 4, a seedling of Bellflower, not of fine appearance, but of good quality.

L. WOODARD, showed fine Ben Davis, Red Romanite and Golden Russet.

C. H. GREENMAN, four varieties of apples, and four of grapes, including Concord, Delaware, Rogers No. 22 and No. 9.

E. H. DANIELS, 3 varieties of apples.

Mr. PLUMB, fine looking specimens of Woodland Greening.

B. F. FELCH showed 9 varieties of Siberians, canned, and 7 varieties of strawberries, in same way. Some of those specimens of Siberians are very large and of fine appearance. The Peck's Emperor strawberry were of enormous size, one of them being 4 inches across when fresh.

Mr. HOLLIS showed three varieties of grapes in fine condition.

Mr. KELLOGG had Diana and Concord, in fair condition, and Delaware in finest order.

MR. LAWRENCE showed four varieties of grapes, Delaware, Iona, Wilder and Salem, all in fine condition, the Salem, especially so. The Delaware, from its size and firmness, seems to be most readily preserved.

CHAS. HIRSCHINGER showed very fine and beautiful specimens of Weaver Sweet. We would also notice the Wealthy, beautiful and good, and the Duchess, kept on ice, looked fine.

J. C. PLUMB,
B. F. FELCH,
I. J. HOILE,
Committee.

FINAL ADJOURNMENT.

Thus ended the longest session the society has ever had, and in the nature and amount of work done, the most important.

With appropriate resolutions of thanks for courtesies received from the railroad companies, and to D. S. DURRIE, Librarian of the State Historical Society, and W. W. FIELD, Secretary of the State Agricultural Society, for gratuitous use of their rooms for the meeting, the Society adjourned *sine die.*

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MISCELLANEOUS PAPERS.

[Under this head, it is designed to arrange reports from individuals, local societies and correspondence of the secretary in a very condensed form. Here will be found more individual experience from various parts of the state relating to special sorts and adaptability to this state, than in any other portion of the volume. Also, some representative papers that have been read before the local horticultural societies in this state. By this means they become identified more directly with the interests of the parent society, and it is very desirable that they all become so interested as to report annually their officers, years' doings, number of members, receipts and disbursements—which will entitle the societies so reporting to fifty volumes of the Annual Transactions.—EDITOR.]

CONSERVATORY—PLANTS FOR ONE.

BY THE EDITOR.

Closely connected with the idea of a conservatory in the minds of most people is that of an expensive glass-house, and immediately there comes up a large bill for glass, carpenter and mason work, and forthwith the whole thing is abandoned as too expensive. A conservatory is a house, built mainly of glass, for the protection of tender plants from the cold of winter. Requires some artificial heat from a stove or furnace, and for this purpose may be attached to the living room of many residences and form an attractive feature to our rural or city homes, and need not necessarily be very expensive.

In fact, an ordinary bay window used for plants is but a conservatory, upon a small scale. These can be made specially attractive and afford much pleasure, and truly for the winter months to the family circle, teaching the young "how plants grow," as well as "how plants behave." In the last volume, I wrote of window gardening, illustrating the theme by a bay window. I now would draw attention to the same subject, but

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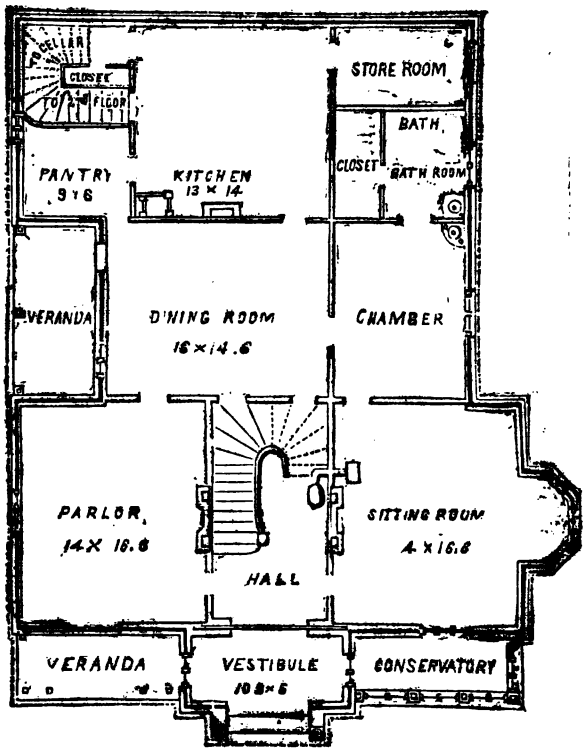
upon a larger scale, and more generally known as conservatory gardening. What is there said upon the general care, soil, clean culture, etc., will apply with equal force to the conservatory. And in the present volume, JOSEPH POLLARD, of Milwaukee, tells us more minutely as to the culture of pot plants. Exceptions for special plants as to soil and treatment may be learned from the books or experience, in the art of gardening, better than can be explained in a brief article like this.



Ground Plan.

OUR FRONTISPIECE

Shows a front elevation of a house I designed with a special reference to plant-culture, adjoining the main or living room of the family—at the same time presenting an attractive appearance from the street view. The ground plan explains itself.

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The walls between the living room and conservatory may either have one or two large windows, or be left open entire, and be neatly arched over. The former, however, I think preferable, as the windows could be opened or shut, to preserve the plants from the dust of the room, or as would sometimes be necessary, to fumigate the plants to destroy the

Maranta.

insects, closed to better accomplish the object. The outside sash should be either provided with double glass or shutters. The former would be best, as it always preserves the glass free from frost covering, as would often be the case with blinds.

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The expense of such an attachment for plants is not as great as many suppose. There are many houses in both city and country, with an open stoop to the south and east, that can be very easily rendered pleasant and attractive by thus adding a window of this nature—more or less attractive architecturally from without, according to the taste and ability of the builder. The after expense is but trifling. The additional heat gained from the increased amount of glass surface, through the day, will about counter balance the extra amount required from the stove through the night.

THE LIST OF PLANTS

That can be grown in such a house is very large. Still a few well grown, will give better satisfaction than a large quantity of sickly ones. Geraniums are always favorites, thriving well, and usually bloom freely. There is quite a variety of them—flowers scarlet, white, etc.

Heliotrope will never be neglected. Its clean, thrifty appearance and fragrance of flower commend it to our admiration.

Bouvardias are excellent winter blooming plants, and among the best for the conservatory. There are several varieties, white and scarlet, with shades.

Fuchsias adapt themselves well to the house, and of these alone it could be made gay most of the winter.

The primrose, cheap as it is, and easily grown, cannot be dispensed with where flowers are desired.

The Abutilon is an excellent home plant and blooms freely. There are several, but the

ABUTILON THOMPSONI

is much the best.

If another class of plants is desired add Begonias and Maranta for their foliage. Tea roses will be found to give satisfaction.

About the casings train an English ivy; it is hardy, thrifty and neat. And by no means forget a hanging basket, to fill with ferns and trailing vines. If ferns are not at hand, place in the center for upright growth, a fuchsia, heliotrope or carnation. If foliage is sought more or in contrast with bloom, for the center, use a Begonia or Colens. These will contrast finely with the other plants.

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Abutilon Thompsoni.

The list might be greatly enlarged, but I have given enough for the beginner. All who love to cultivate flowers in the summer, will like to preserve them through the winter, for engagement when all without is so cold and dreary. Remember, then, the chief use of flowers is to beautify our homes, and that nothing adds more to the appearance of the sitting room than a few nice plants and flowers.

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FRUIT FOR THE DEPARTMENT, WASHINGTON, D. C.

The following paper explains itself. It gives us pleasure to record the fact that the fruits of the northwest are receiving the attention they do at the head of the department at Washington. The request came to hand too late in the season of 1872 to respond, but it will be our aim to make up a collection at the next annual exhibition (in September, 1873), and forward to the commissioner.

WASHINGTON, D. C., Sept. 24, 1872.

O. S. WILLEY, ESQ., *Sec. Wis. State Hort. Soc.*, Madison, Wis.:

DEAR SIR: Will you please send us a list of the different varieties of fruits, esculent roots, grains, etc., which you consider to be the best adapted for general cultivation in your state, making mention, at the same time, of the kind of soil (whether stiff and clay, or light and sandy), the best adapted to the growth of the different varieties. Will you please send also, specimens of such fruits as have been selected by your most reliable pomologists and agriculturists, as best adapted for planting in your state, taking care that the specimens shall be of medium size, shape and color, to serve as types for the year 1872, the number sent of each kind of fruit, as apples, pears, etc., not to exceed twenty varieties. These shall be modeled and colored from nature, and the duplicate specimens shall be forwarded to your State Agricultural or Pomological Society, or, if you think proper, to your State Agricultural College. The matrices can also be sent, if you wish, so that you may be able to duplicate them if desirable for your county societies. If the state is very large, please divide it into districts, as the consideration of locality and altitude as well as soil, in planting some varieties of fruits, is of the utmost importance.

The department is now ready to commence illustrating the fruits and vegetable products best suited to each state, and we therefore take the liberty of calling upon you for information and specimens, as only a few states can be represented with the present appropriation for that purpose. Any new and promising varieties will also be very acceptable.

I am, respectfully,

FREDERICK WATTS,
Commissioner.

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THIRTY YEARS' EXPERIENCE IN FRUIT CULTURE NORTH OF THE WISCONSIN RIVER.

BY W. T. STERLING, MT. STERLING, WIS.

In 1842, I settled in Crawford county and engaged in fruit culture. I purchased in St. Louis, Mo., 2,001 apple trees. Being a native of Kentucky, I planted my trees fifty feet apart, as I had been taught to do in my native state. The consequence was, four years after planting, I had five trees alive; this taught me a lesson: to let all trees grown out of Wisconsin alone.*

I will now give what has been my practice since, coupled with observation, commencing at the seed and ending at the cider mill. First location; I would always select a northern or northeastern location, sufficiently elevated to carry off all surplus water; I prefer trees two years old. They succeed better than older trees; my orchard and vineyard is 770 feet above the mouth of the Wisconsin river, according to Dr. OWENS' measurement. Trees healthy, and produce good crops; I set my trees twenty feet apart, select a damp day, as soon as the frost is out of the ground in the spring, take two trees at a time from the nursery,† be sure and get every root that belongs to the tree if possillle; it is a rule that will hold good throughout the vegetable kingdom, that the root of the tree or plant is invariably in proportion to its height; have a boy with a common weeding hoe to assist me in planting; scrape a hole wide enough to take in all the roots; set an inch deeper than it grew in the nursery; have a tub of strong soap suds at hand, dip the roots of each tree in the suds before setting; when I have set a row of ten or twelve trees, I go back to the first one planted, drive a stake on the west side of it, tie my tree to it with a string. When I have set twenty-five trees, mulch wide and deep with chip manure, or course litter from the barn yard. This is my day's work.

*Being a native of Kentucky, Mr. S. probably selected southern varieties, or, in his then inexperience, planted them in a poor location. Of the list he first tried, or where planted, he fails to give us any light, but seems to jump at the conclusion: no more trees for me from out of the state. Would commend to his attention the article of A. G. TUTTLE, in volume Transactions State Agricultural Society for 1871.—[EDITOR.]

†I judge he raises his own trees; most tree planters do not.—[EDITOR.]

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When my trees are all set, if the season be dry, I water them late in the evening. I plant my orchard with beans or potatoes, cultivate well during the months of May, June and July, and rest in this condition until the next spring. When the buds begin to burst, I go armed with a bucket of strong lye and a coarse cloth, hold the top of the tree with my left hand, and wash the body of it well; then give it a pruning that is to last it for life. I prune to promote growth, to retard growth, for symmetry of top and to give my tree a proper balance. Do not let the body of my trees be more than two feet in length before I shape the top. I prune from the time the buds burst in the spring until the leaves drop in the fall, and do it all with the thumb and finger; never take a saw or ax in the orchard. Cultivate as above named until my trees come into bearing; then discard all crops. Plow about six furrows between each row of trees, about the first of June; the last of July, the same number of furrows the other way, leaving a solid block of uncultivated* ground from four to six feet where the row stands. Never allow any stock larger than an old hen and chickens to run in my orchard.

WHAT TO PLANT.

My observation has been confined to the counties of Crawford, Richland and Vernon. I shall only name the varieties that have stood the test from five to twenty years in different localities in these three counties. Early Red, Early Harvest, Haas, Duchess of Oldenburgh, Fameuse, Sterling's Fall, Golden Russet, Tallman Sweet, Ben Davis, Prior's Red. These give me a succession through the season, and all good. We keep out of the deep valleys, where there is too great an accumulation of vegetable matter. A large portion of these three counties is rolling ridge land, with a deep loam soil, underlaid with lime stone, the very element for the apple or the grape. Tetofsky is the tree for the valley. It is as hardy as a bufr-oak tree. The Soulard crab is gaining favor with all those that have tested its fine qualities for culinary purposes; it supplies the place of the quince for canning.

* This is contrary to the experience of all the best cultivators we have any knowledge of in Wisconsin. We have yet to see a successful orchard that has been treated in this way, and had Mr. S. attended the meeting of the State Horticultural Society, we are of the opinion he would have found a better way.—EDITOR.

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Grapes are gaining favor with us every day. Here, the Concord is the grape for marketing; the Delaware for the table; the Clinton for wine.

Plums do well with us. The Miner is gaining favor every day, and should be planted more extensively. Tree hardy, good grower; makes a tree as large as the common apple. The only plum we have, we can get to market safely; can sack these and ship to New York as safely as we can potatoes.

When I look around me and see the ax man robbing our orchards and nurseries of their overcoats, I tremble at the consequences. I mean by this, our forest timber. Where will it end, or what is to be done to check it?

FRUIT CULTURE AND OBSERVATIONS IN SOUTH EUROPE.

BY HON. J. C. COVER.

FAYAL, AZORE ISLAND, PORTUGAL,

February 10, A. D. 1872.

O. S. WILLEY, *Sec. Wis. State Hort. Soc.*, Madison, Wis.

VERY RESPECTED SIR:—Waiving the very limited acquaintance I was favored with, and basing the liberty I take in writing you upon professional respect, and my desire to, perhaps, accomplish some valuable service to the public, I now write you —may be at considerable length. For you appear to occupy the position of a medium, and the best medium of our state, for communication between the lower and higher grades of horticulturists as well as between the practical operative and the scientific classes. It is the case in all things that there must be mediums or trusted organs of communication between castes or classes, and such I regard yourself, aided by that spiritual vehicle, the Wisconsin *Farmer*, of which I am a regular reader, and which appears as your organ.

The idea of writing arose especially from my reading a late article by yourself on the pruning of fruit trees, time, etc., which subject I expect to discuss in my letter.

But at present I give you my observations as to fruits, fruit trees, and management in South Europe, which I am sure must be curiously interesting to you.

In the summer of '71, I was favored with two months' leave of absence from my consulate, during which time I visited with leisure very many places in South France, the Pyrenee Mountains, Spain and Portugal—never failing to visit the fruit orch-

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ards, nurseries, vineyards, hortus, floras, etc., at my many stopping places. I was so fortunate as to be in company with a gentlemen having even more leisure than myself, being a greater connoisseur and admirer of fruit culture than I, and in many respects a better posted man, though wanting in equal practical experience. My English friend and self were a harmonius pair of travelers, as our tastes were so like and fancies for curious things in nature so near the same. In art matters we differed, as he was great for pictures, statuary, archæology, etc., whilst I only attached value to them as the mile stones of history, by which the present is linked to the dead past. But we mutually admired the old Roman works—walls, roads, temples, arcades, batteries, etc., some in fine preservation though tempest tossed and war ruined during 2,000 years. Fine old temples of marble with great oaks, chestnuts and olives growing from the earth under floors once trodden by princes. Some of the Roman roads and bridges along the Tagus; great old trees growing up where the war chariot of Cæsar's armies once rolled along to battle—to victory. The castles of a more modern era, still in more mournful ruin, were to me still greater objects of curiosity. What lessons they teach! no book can instruct with such clearness. Most of these old castles and palaces are covered with vines; and flowers have usurped the walks and gardens, the once trodden floors and courts. How singularly beautiful the thought that Nature so benevolently covers up with verdure the rents and chasms of these once proud, now deserted homes of a people whose pride and violence led to their own annihilation? And flowers have come forth where the very earth was scorned by a proud people. And bats and owls are the inhabitants, and donkeys dwell in the halls where there are the remains of Gods of stone. Companion and self ascended the marble stairway, leading into an ancient banqueting hall, 30x70 feet, of a palace, the splender and finish of which there is no equal in modern times—certainly not in our own America. And said fine old hall is now used as a donkey stable, the stairway having been prepared for their ascent by hammering off the sharp edges of the steps.

And all such palatial desolations are still deeper barricaded from the world by being shut in among a people so ignorant, superstitious and degraded that the best of them are constantly at your heels begging for a vintim (two cents,) to buy bread—all this in a land of fertility—as God-favored as any in the world, but about as man-damned! There are actually, in northeast Spain, along the Pyrenees, none who own anything, or do anything, or think anything—except the Priests, and they are in their full glory in the midst of just such desolation—mental, physical, moral and social. Romanism is the only flourishing element seen. Never before was the illustration of this fact right before my eyes. The people are all bigoted Catholics, and, it is said, are all villains and robbers and beggars—shar-

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ing their small gains from any and all sources, with the Priests, to whom they confess the means by which their money came, the very money shared to procure indulgence for such offenses. A few policemen and soldiers are seen, who protect strangers, and are said to be faithful—at least we found them true when well paid.

South France is but little better, moraliy and intellectually; central Spain and south central is some better, and Portugal a slight improvement. The Pyrenee mountains are peopled with a race, the history and character of which you will be interested in reading in some good history. St. Sebastian, on the Bay of Biscay, and where the railroad crosses from France into Spain, is the funniest old place I ever saw. Here the French and Spanish soldiers never cease quarreling and fighting over events that took place 1,000 years ago. But both equally respect Englishmen and Americans. The Spanish, especially, are strong friends to Americans—this I found to be true everywhere in Spain, and most perceptibly so at Madrid. I really liked Madrid on this account.

Dashing currents descend from the Pyrenee mountains. Water clear. Mountains generally timbered. In winter, covered with snow. Winds chilly. Topography singularly bold, often grand and everywhere marked. Ancient roads seen everywhere; deeply cut, often engraved into the hard rocks. Geological appearance uneven, upheavals frequent, inclined and anti-clinal action—and many places are basins and mounds. Often there are layers of rock set on edge and extending for miles. Such layers, (if ever they did lie in layers,) appear a foot or two, or three or four feet in thickness, and protrude to varying heights of ten to fifty feet—top edges deeply serrated, or uneven. The roads pass through openings made as doors. Rocks varying in kind and name—some new to me. The railroad passes through more tunnels than all I ever saw in the United States. Finest railroad I ever saw, but poor, filthy, compartment cars.

Passing from the mountains to the lowlands in Spain, we soon came to fine laying country, land good, unsettled on account of mountain bandits, and generally uncultivated. The land culturing done chiefly near the villages, where high walls protect all the little farm potatoes. The present villages, often quite populous, are the ancient sites of baronies, dukedoms, etc., under feudal laws, but all the original features gone, except the enormously great and grand old castle, now in ruins. Often we see walls 10 or 20 miles long on a side, formerly the inclosures of the domain of the ancient lord of the castle. Walls still in good preservation. Often spaces of ten, twenty or thirty miles and no signs of present civilization, only ancient works, and country thinly *settled* with very large chestnut, olive or oak trees—the olive mainly abounding. Really, a beautiful country, but without any government affording protection to

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life or property. Fine springs too—once expensively walled about and ornamented with marble sculpture. All mossed over, neglected. People, when seen, are ragged, long haired, lantern jawed and the color of tan bark—small, black bug eyes, crafty and treacherous and thieving. In limb, bone and size, the people are small—very evidently weak and feeble in body and mind. The women, some stouter and finer physique than the men, and seem to have charge of most of the business and labor.

Next, near Madrid on all sides, it is a barren or waste, and, from exhaustion, the land really worthless. As we recede from Madrid, the land improves, and now and then something like cultivation, country life and improvements are seen.

But to the trees: Orange groves abound whenever protected; some lemon and lime and tamarind orchards, and figs as abundant as required. I do think, now, of all fruits, I would prefer figs the year round. Apricots, plums, nectarins and a fruit of the American papaw species abound. Also, pears and peaches in perfection and abundance. Perhaps cherries, but I saw none. As to apples, they are abundant, but the trees are shrubby and and dwarfed, but bear great crops. The quality of apples has been tolerably improved by the grafting process. Trees bear very young, are soon covered with a yellow moss, and then appear as if old and dead; yet they live long, sprout up from the root, and renew life — thus live forever, I guess. The pear is also shrubby, and plum ditto. Fig trees grow up, become top-heavy, keel over, limbs take root and throw up new trunks until one old tree and family cover an acre, and you see a great fig grove and figs as plentiful as apples upon a well loaded Siberian crab.

But grapes — South France is all a vineyard, and thence east toward Italy. Spain yields grapes almost spontaneously, and the people all imbibe wine, or what we would call "*claret*," a mild, pleasant drink, slightly sour, and but little intoxicating—usually a bottle at a meal—price eight to nine cents, or twenty-four cents per gallon. There are wines possessing more intoxicating virtues, but they are chiefly exported to Britain. The pure Spanish wines are what we would call very nice claret, such as we take with ice and sugar as a punch. The *must* of such wine is delivered to manufacturers at about nine cents per gallon, from the vineyards. The grapes from which the *must* is made are singularly rich, sweet and high-colored. To me, it is singalar why such sweet grapes make such sour and weak-bodied wine. Such are the grapes and wines of South France and Spain generally, but everywhere, other sorts of grapes grow for wines for export to other parts of the world — wines having more intoxicating properties — some, indeed, very strong and high-beaded, almost like brandy.

In South France, the vineyards are managed thus: First, a small sugar maple tree is set, and at its foot a vine planted.

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The tree is designed for a trellis support to the vine. Every year the maple is shorn of its limbs grown the preceding year, except that spurs are left for vine supports. Trees headed about six feet from the ground. Such vineyards are set with trees and vines about eight feet apart. In parts of Spain the vines are raised to head three or four feet from the ground, and self-support their canes and fruit. No signs of disease among vines. Some vines appear of great age. The chief rural pursuit in large sections is the vine, but, in places, much stock is herded—sheep, cattle, goats, donkeys. In the Pyrenee mountains there are no vines, but fine for grazing, and the streams excel all I ever saw for fine fish. Goats are abundant; used for milk and cheese, clothes and beef. I really find goat milk good, goat cheese excellent, goat beef like mutton, only stronger. Kid very good. Pigeons, wild and domestic, abundant everywhere in Spain; also, hares.

Living is, or then was, enormously dear in Spain—meals dearer than in America. I paid for a cup (large and excellent) of chocolate, 24 cents, at a Madrid restaurant. A broiled pigeon bought at a car station to eat on cars, 76 cents; cup of coffee, 20 cents; tea, 10; eggs, boiled, 5 cents each. Day board in Madrid, at a tolerable place, $4. Single meal at restaurant, $1 to $1.50. Madrid restaurants, (or cafes, as they are called), are very splendid. All the tables, floors, paneled walls, of white marble—silver sets to each table, and there may be 200 tables in a room. Servants in rich livery, something like our American officers of the army. The Paris cafes are not more splendid, but sometimes gaudier with silk trimmings. Men and women take their meals at the cafes, live about them, only going to their homes to lodge. The cafes are the great news and assembly places for people to meet and gossip and talk politics and treason. One is called the *Republique* cafe; another the *Progressist;* another the *Royal Chartist;* another the *Castilia;* the *Democratique;* the *Bourbino*, etc., each indicating its sort of patrons. The *Republique* is kept by a real republican, who speaks English well, and assures me the republicans are rapidly gaining; most of the young men, aristocratic and middle class, all growing up republicans as weeds; says they are rejecting Catholicism, and, "you, sir, will never see a priest about my cafe, unless disguised." Again, "go to the *Bourbino*, and you'll see half priests, and it is there where the treason hatches." Again, "But, sir, our masses are ignorant, and are opposed to education among themselves, because the priests say it will make them unhappy and make them infidels, and their souls will go to h—l. But the Liberal Republican party have forced the government to establish schools in many parts—secular schools—and they are fast growing in popularity and patronage. Spain, sir, will be a Republic long before France or England. We model after the American repub-

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lic—will have every province a state and independent government as in America, and then a National Congress."

There are many objects, features, styles, habits, sounds, curious attractions, to remind an American that he is indeed in a strange country and far away from his home. Hundreds are crying aloud in the streets, lottery tickets, bull-fight tickets, opera tickets, circus tickets, and really in the line of daily newspapers, as many appear to be sold by the squalling news boys as in an American city; also, sold from the cars. And so far as I could tell, most of the dailies sold, say five-sixths, are liberal or republican papers; for in Spain the press is free, and the reading masses generally republicans. The newsboys sing out the names of papers they sell, as in America, as also the sensation headings. When in France, in the winter of '69, it was not so in Paris, where the press was under censor restriction. Newsboys whispered the names of papers they had for sale, covered up in the folds of their overcoats, and whispered the sensation headings. This was under Napoleon. Over the channel, in England, the newsboys are even more demonstrative than in America, often appearing like a mob. Also the basket book peddlers are wonderfully busy and noisy.

In South Spain, the Andalusians, and along the Mediterranean, there is deep darkness, poverty, misery and laziness. The soil appears good, but neglected. It is thickly settled. The people sing much, have large, black eyes, slender physical make-up, intellectual, melancholy, soberness and laziness and rags. Fine old palaces inhabited by swarms of beggars; people dress much in goat skins, a skin making a mantilla, another a pair of pants. The women dress in nankin or calico, and with white aprons and collars; wear their hair long and falling, often plaited or in natural curls; curly when Moorish blood predominates. They sing to accompaniments on a sort of guitar strung with wires, and dance to plaintive melodies. All the songs are airs of love, and melancholy, it is said. The earth yields almost all the essential supports of life without culture. Plant a fig tree and it supports the family most of the year, the green figs lasting from June till October, the dry the remainder of the year. Grapes dried for raisins, easily dried in the sun. Rice very cheap. Begging is chiefly carried on to raise money for the priests.

In this region, the grape and fig flourish spontaneously. Apples as usual, low, dwarfish tops, pears same—these also spontaneous, as they are seen everywhere in wild places loaded with fruit. The mulberry, also apricots, peaches, etc., and of course oranges—the latter good from November till April. People live in assemblages of houses, a dozen or twenty in a square, or inclosing a square, small stone huts, very ancient, low, narrow doors, rarely windows, opening in roof for smoke to pass out, as the cooking fire is built in center of the room. In places, beautiful forests of Spanish chestnuts, olives, Spanish walnuts, mulberries, a sort of cedars and palms and cassias and lots of trees

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bearing foliage like cabbage leaves, and other tree kinds to me unknown. Topography, undulating, in places rising gradually to great heights, some precipices, some plains, streams have their channels very deep, 20 to 100 feet, fine springs in places, soil sandy, mixed with red clay, and on the slopes, deeply fluted or convaluted by rain washings, no pains taken to stop the like; land covered with thin grass, or herd fodder for goats. It rarely snows in south Spain, never freezes, frosts on the tall hill tops, north winds chilly, south winds from Africa hot, breezes from the Mediterranean delightful. Rarely anything exported or imported; really, nothing is wanted. God only knows whether this God blessed country can ever be turned into account by modern civilization! I am certain the people can never be reclaimed, or made into anything useful. They are degenerated physically and mentally, and morally a blank. There is nothing of them. The railroad extending from Lisbon to the Andelusias has as yet effected not a visible change. The people never go near the cars, never send anything, nor have anything to smuggle abroad. The railroad company are supporting thousands of English and French and German laborers, getting out marble from the quarries for transportation. But the natives take no hand, except to peddle fruits among the employes, and run on errands for them. The natives are said to be deceitful, two-faced, and treacherous, and never to be trusted about anything.

Portugal is some improvement upon Spain, especially in respect to industry; otherwise I can see nothing to claim. Their religion is the same, therefore, destructive to all the virtues, to intellectual development, to humanity. Brutality is cultivated in all Catholic countries, and especially among these Italian races, just as it was among their pagan Roman ancestors, upon whose religion the Catholic was founded, all the bad elements retained, and the vices provided for by indulgence and penance.

There are a few, (say 30) very rich families residing chiefly at Lisbon, who own seven of the nine million acres in Portugal. May hold it, so long as uncultivated, and no rent to pay. But two millions of the nine million acres are under cultivation, and the rich refuse to sell or lease. These 30 important families are stronger than the government, therefore, the people mourn in close quarters, four or five millions confined to two millions of land, about three times the territory of Dane county. And these thirty families were foreordained a thousand years ago to everlasting caste as barons, counts, viscounts, etc., and also their land titles foreordained for ever, eternally, and till Gabriel's horn sounds, so, whose business is it, if they hold on to what was sealed to them and foreordained to be sealed for ever, no difference, the starving and ragged millions are equally and by the same decree foreordainod to eternal starvation, poverty and rags. Oh, it is glorious, these things are! Jack Falstaff would

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have said, "Charming, sublime!!" Say two millions in rags that thirty godly, select families may reign and be lords, counts, barons and millionaires.

The story runs, that not long since, one of these baronial offshoots went over to England and wished to marry a daughter of Victoria. The home opposition was warm and gained. Victoria's daughter came of a family ennobled less than 250 years ago—the Portuguese house exhibited a *heraldric* record 1,200 years ancient.

The present royal family (king of Portugal) has a defective title, and his ancestors can be traced back but 700 years. Therefore, the ancient titled Portuguese families cannot meet on a level with the king. But the king's wife, daughter of King Emmanuel of Italy, makes it all right, as her ancestors reckon back to the Cæsars, who, I believe, sprang from the gods. Such is caste—and how funny to an American!

But in Portugal, there is a vast horde of middle and low grade aristocracy, and to such are awarded all the civil and military offices. They, too, claim a stupendously long, family, ancestral reckoning in the official *Herd's Book*. They are an awful proud and bigoted people—these second-third rates are. But primogeniture having been abolished some years since (except that it don't apply to said ancient thirty), these inferior grade caste families are coming down, down derry, down, and never to again ascend, because fallen greatness can never rise—never did. I am slightly sorry, at times, for these falling stars. How sadly —how tenaciously they cling to the trifling remains, the family heirlooms, and how fondly they love to recite to their children and confiding friends the old family tales, their love and war adventures, their fame and heroic acts. Their lands go, in parcels, their houses, their rent claims—lastly the family plate and jewels. Still they keep up appearances, and how, nobody knows. Well, they live in garrets, collect the cheapest supports of life. Dismiss their retinue of servants, take to *podreda* (a sort of Portuguese, vegetable dish, costing most nothing). Their wardrobe is sacredly kept, and polished by their own hands—and their boots. Lastly, the Portuguese government gives them a small office, one of no use to anybody but the holder for its trifling salary. Offices never leave a family. Therefore, here is barely hope. Perhaps by intermarriage of a son or daughter, the family may still rise, if he or she marry rich—some commercial family, anything to make a raise—for while there is life, there is pride and hope. I have seen all this—see it about every day in evolution.

Now, why all this sorrowing over a family fall? I will tell you: Such a family may beg, clerk in a government or commercial office, may go into trade even, and not lose caste. But they must not go to work, must not learn trades, nor farm, nor go to sea as mate or crew. Any of these forever dooms them to aristocratic execration, and their descendants. Nor may one

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such be seen going to or from market with a basket or any article—may never be seen at any useful or productive industry. So you see how it is. One day I persisted in carrying home in my hand a small purchase; was met by a Portuguese English speaking friend, who reminded me thus: "Sir, it will do for an American, even a United States consul, to be his own servant, and I wish to God it were so here. We allow Americans a wide margin—they go it wide, and still we respect them; but, sir, were I to be seen carrying such a parcel, I would be marked for life, and my family would suffer degradation from the associations to which they are by rank entitled." So said my Portuguese friend, who is the French vice consul here. He and I have talked much upon these matters, and he would be American rather than the bearer of any other flag on earth. He says there is no use; reforms as to these things are impossible with such a people. The higher classes are supported in them by the next in rank, the great middle classes—lawyers, merchants, commercials, doctors, etc., support them; and the grades below would be lost in the clouds were such things leveled down. Yet, liberal ideas are beaming through in many respects. The Americans resident here are having great influence, and are patterns in many things. No people on earth are calculated to have so much influence abroad as Americans. The reason is, we are bold, independent, practical, cater to nobody, speak readily and freely, and are really the most intelligent travelers in Europe. There are exceptions; we have sycophants, poor, contemptible caterers, who even ridicule their own nation and government and manners.

MANAGEMENT OF FRUIT TREES IN WISCONSIN—PRUNING, ETC.

But, I must now wander in thought, away four hours later in the day, thousands of miles westward. Who can doubt the mind is an electro magnetic telegraph?

I will now read your article on pruning, so as to exactly see your points. Well, I have read it, and mean no flattery when I affirm it is the best and truest article I have ever read. I mean, from my stand point of experience and judgment, our climate and soil considered, it conforms the nearest to what is my practice. I dissent entire from all who advocate fall, winter or spring pruning—and adhere only to summer (July and August) pruning. But, as you seem to rather favor my views in this, I call your views the nearest my own of any.

I claim pioneership in several tree culture arts: summer pruning, mal-form forks and such, the main cause of tree diseases, and the use of paint for tree wounds—the latter, however, I got from a Col. Jackson, orchardist, Dubuque, in 1847. I also lay some claim to the time in changing trees from barren to bearing trees by means of stripping barren trees of all the bark from the body, about the middle of July—or a ring of the bark—the effect being to compel the formation of fruit buds.

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This was an accidental discovery made in 1852, when I barked a young oak early in June; next year I found it bearing a heavy crop of acorns. Applied my supposed discovery to apple trees next year—failed—June was too early. Next year I made a series of experiments at barking from June to September—tearing off some bark every three or four days, and marking on the barked part when it was done. I found the middle of July the right time—and at which time you may tear all the bark from a tree without injury, except to arrest its growth; also, if the sun soon falls upon the barked part, it may dry up the sap and prevent the formation of new bark. Barking should be done in cloudy weather, or the part shaded from the sun for a day or two. Pruning in July or August has the same effect, in causing bearing, but if a tree be over pruned it may arrest growth and bearing to some extent through two years. Slight pruning, say last of July, usually causes a bearing tree to bear the ensuing season.

I learned from said Col. Jackson that paint for tree wounds was his own discovery, and that from accident. Those days he could not get any shellac nor beeswax, so could not make any covering material. Bethinking of his paint pot and brush, when having some pruning done, he applied white paint—rather thick. Says he found it a beautiful and grand success—the oil and paint not being absorbed into the tree, as he had feared—and never causing any bad effects. Whereas, shellac preparation and grafting wax are troublesome to apply, expensive. The shellac often scales off. The grafting wax, when melted by sun heat, is sure to poison the tree and produce sores. White paint lasts about two years—really longer than the other preparations. A renewal should be made over large wounds, to insure a tree against any dry rot of the part. Dry rot is very damaging to trees, but may be thus avoided.

About the year 1856, paint came to be used generally for Iowa orchards, through Col. Jackson's recommendations. In the year 1852, I wrote to the *Wisconsin Farmer*, and afterwards, to the *Prairie Farmer*, recommending white paint, but little notice seemed to be taken. Next year, I again caused publication, but heard nothing. In 1856, some one wrote he had tried my paint method with great success. Still, the orthodoxes were skeptical, and I guess our nurserymen, who are and ought to be at the front, have not yet, I believe, discussed and recommended it. Unless, very lately, the fruit books and horticulturists have not alluded to paint for wounds.

And as to summer pruning and its advantages—especially for our local parts, there is equal reticence, apathy, neglect—yet, very many through our state have adopted it, with entire success.

The best I can do is to give you my personal fruit tree managing experience.

In the year 1854, my partner in the printing, purchased as

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joint office property, an old nursery—20 acres—mostly in trees in all manner of condition, the finest sold off, the runty and ill-formed still standing. The design was that he should manage the property, but he only cared to manage the selling and money-paying part—leaving to me the jungle. So it was agreed that I should finally become the owner of the land (where my present home is), and he of the saleable nursery stock. This offered me the inducement to make the entire 20 acres into an orchard—using the old trees as far as possible as standards, and leaving them stand as near as possible in rows, orchard distance. Of course a great many—in fact, generally plenty of good trees, counting occasional seedlings, for a fine, standard orchard—though of course many trees had to be manipulated and straightened up to get them into style. It was a big job. Kept one or two hands to assist, during the summer half of three or four years, and I did, myself, a great deal of work.

There were hundreds—thousands, of diseased trees—diseased as usual, from ordinary causes, and just as you are familiar with. I went into surgical operations—anatomically cutting up and analysing the bark, forks, hearts and pathology or morbid anatomy of hundreds of these diseased, winter-killed, winter-blighted, south-side bark split trees. Found I was learning fast in my new school—the like of which I had never heard of. Trees from five to ten years old.

I soon made demonstrations of a great many things which are still being discussed by the horticulturists, and which they might easily settle as I did. I called the more intelligent orchard men of the vicinity to visit my *works*—and convinced them at once about a great many points still being discussed in the *Farmer*. It was made all plain—disease and cause, origin and due course of decay. Oh, said one, I thought it was the extreme cold that caused south-side bark blight! Another; Oh, I thought it was the sun heat! No, you see the black matter coursing its way from that damaged fork down to the warm side next the ground; and there it masses—unable to pass below into the roots; why not pass into the roots; well, here, take the magnifier and look at the wood at the neck of tree, and see how coarse the circulatory ducts; now again, see the ducts of the roots—they are so small that said dark, damaged matter cannot pass them; it must remain at the neck of tree, just above ground, where it kills a section of the tree. You see that dark matter did not originate at the neck of tree, but away up at that damaged crotch, where the water got in, and soured the intervening dead bark. We use the hatchet—there, now, do you see the smoke colored matter on its way down? Oh, yes, there it is. Why, you ought to write to the *Farmer* and let it be known. Yes, I'll do so. And I wrote several articles which were published, fully explaining it all. But it was new, and my analyzations were no more respected than mere theories or imaginary offerings.

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"Well," I said to my visiting friends, "if these things be so—if all this blight and winter and sun killing be caused by such mal-formed forks, what shall be the remedy?" Oh, that is clear—cut away one of the prongs—cut it down below—tear it off—have no such crotches. But that would spoil many of the trees. Very well, better so than have a sickly orchard.

And so we pushed our examinations, never coming across any exceptions—the mal-formed forks always diseased—in time affecting a destruction of trees. Trees having all rightly formed crotches invariably sound—hardly any exceptions—but only enough exceptions to prove good the rule—one in one hundred.

My orchard was managed accordingly, all the mal-formed forks corrected by cutting or sawing off one or more prongs. My neighbors, many of them, adopted my practice, still keep it up—and have perfect orchards—no more winter killing nor south-side blight. My orchard has been managed accordingly same way ever since, now fifteen or sixteen years, and no defective trees at all—except where I neglected some crotch.

But, sir, I must tell you of my misfortunes as well. The large trees were a long time recovering from a loss of half, often two-thirds, of their wood. But, they remained sound by keeping the wounds painted well. Some kinds were longer than others recovering, some two years, some three, some even longer. Their bearing was long postponed. But the smaller ones recovered in a year or two, and have done the best. Still the old trees are now bearing, strong and free from disease, stand the winters, the summers, and no barking south side, where you recommend protection by setting up boards.

Will say this: that about Madison where you have slight lake influence, the trees do better than in my vicinity. They will even do tolerably well with bad crotches. In Michigan, trees do not suffer at all from bad crotches, nor in New York, nor elsewhere south or within lake influence. I can only account for the difference in this way: Our Wisconsin, Minnesota and Iowa climate, where the forks spoken of so fatally damage trees, we have a dry, very cold climate. It is well known that an extreme degree of cold ensmalls the body of trees, that is, during the maximum of cold, the body and limbs measure in circumference less than in a temperate or medium winter degree. Of course such being the case, these loose, or mal-formed forks open and so admit the snow, ice—perhaps rain, and the cold. And the intervening bark so made wet, freezes, and a sour mass of matter is formed, which damages the part—doubtless is absorbed into the circulation. The ensuing spring, such damaged matter is often seen bubbling from forks, a gaseous, sour matter. I have often seen the like, and at once have separated the parts of crotch and noted a perfect gas and vinegar factory. Soon the matter changes its nature, becoming a fatal poison, and passes into the downward circulation, as described, massing on the warm south side of the tree and destroying a part of the

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lower body. As noted, the smoke-colored way is marked from the crotch to the place where the matter is massed. Very often a narrow streak of wood and bark appears killed from crotch to where the matter masses at the neck. Will observe that such matter never passes into the upward circulation, because the only organs of circulation accessible to the matter are those leading downward. If the diseased fork be in the top, the sour matter still passes downward, causing a dead blotch somewhere. When a fork remains wide open, I have noticed that the tree is less liable to injury than if it opens through the winter, admits the snow, then in the spring closes up tight. I leave you to reason from cause to effect upon inductive principles, upon much I offer, and much of which I have never been able to account for.

I am, friend Willey, laboring to advise you fully of such, my experience, because I think you will investigate, perhaps even analyse, anatomise, as I did.

I recur to summer prnning: In the summer, July, of 1854, I gave my nursery orchard trees a general pruning. No large scar ever hurt any tree, as you mention, though I followed up with the paint and brush. All said, "why Cover, you'll kill all your trees," and really I feared it would be so. But the ensuing spring all appeared in beautiful and healthful foliage. They made but small growth, however, that year. I manured highly, plowed—next year they did better, and went on doing better till bearing. Will observe that it is better, I think, for trees to postpone bearing longer than they do. Years since, my trees got over their distresses, took to bearing, and promise as well as any trees I ever saw.

I have found that plum, cherry and other tree kinds should be pruned, and their forks corrected the same as the apple.

Unfortunate—I allowed my orchard trees to stand everywhere too thick, twelve to fourteen feet apart. My family write me, "you are wanted at home to thin out the orchard trees nearly or quite a half, as we cannot plow among them, nor even walk among them in places. The trees are all thrifty, but too thick." This is all true. I left them standing too thick, because, as I said, about half may die, leaving the orchard just right.

The remains of the old nursery stock were never finally all cleared out till four years ago, when I positively ordered the nurseryman to clear up the concern, leaving me, as usual, enough standing orchard trees. Some say "COVER'S orchard has done so well because the trees were never reset, but allowed to stand as first set out in the graft." I can hardly think there is anything in this, but leave you to settle it. Again, "COVER'S orchard has a most advantageous situation." A fourth of it slopes to the west, unprotected by forest; a fourth is level, and protected by a forest on the south; a fourth has an eastern exposure, protected south by a forest, and a fourth having a southern and high exposure, with no protection. So far as I can see, all parts are doing equally well.

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A nursery impoverishes land rapidly, I have found, and thorough manuring should follow final removal of stock. My land was originally oak land—large oak forest covering the land. The flat or level part of my orchard is wet soil, and should be underdrained, but as yet the trees are doing well, except that the blue grass is hard to keep down. I do not raise crops in the orchard. Have a few Rhode Island Greenings doing well, but they are struggling, I think. Also, a few Jannetts; the latter, however, prove to be a failure, because three-fourths of all the crotches, body and top, are mal-formed and sickly in spite of all I can do. They would be a fine success if I could make good forks. One of them—exceptional—has all good forks, and is in healthful and abundant bearing. The rest have borne but little. I have found the South Carolina Red June a most splendid tree on account of hardiness, sure annual bearing and very early ripening of fruit, earlier than the Red Astrachan, and fruit superior.

One thing more: The old nurseryman selected and grafted of kinds without any respect whatever as to hardiness. In fact, those times there were no approved kinds known for hardiness. My list, however, shows a fair proportion of the approved kinds, but the older trees are of all sorts — the new selected from approved lists. This may make my success still more singular to you, for, in fact, most of the kinds in my orchard are regarded as failures, whilst they generally seem to be doing as well as the late approved. I except the Dominas, Rhode Islands, Jannetts, and two or three others of the one hundred sorts. Will say, however, that some of the disapproved kinds, though superior in the east, bear inferior fruit in my orchard. This is against them only in my method. I have a few native kinds, taken from old French orchards, which ought to be seen to by your society. They are as hardy as oaks, and the fruit, fair to first-rate—usually summer and fall fruit.

A good many farmers in our section long ago, and more recently, have quite adopted my method entire, and many have not. Those who follow it report equal success; those who have not, report the usual amount of winter killing, etc., and keep on saying, "it's no use to try to raise fruit in this country."

As to other fruits, my Miner plums and Lombard plums are perfect and very profitable. Early Richmond cherries — the grandest success of all — as no others amount to anything. I wonder more is not said of Early Richmonds. Grapes — we have great abundance. Siberian Crabs, about 200, do well.

I have a large quantity of a sort of fruit, originally set for ornament, but which I esteem as quite profitable—High Bush Cranberries and Sarvices or Shad Berries. Fortunate—I have more Shad Berries than the birds can destroy, and they are a rich, small fruit, and a superb ornament. The High Bush Cranberries, we find exceedingly useful for jell, and very palatable to most persons for meats. They are abundant, annual bearers,

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fruit hangs on about all winter; birds shun them; I have them in great abundance; may be propagated same as the Snow Ball, of which they are a variety. I must highly recommend these side fruits.

Again I recur to Early Richmonds; perfectly hardy; large alternate year bearers; never fail; but one must set out a surplus for the birds; say a third in thirty trees. I have always regretted the course taken with the old Miner Plum. The old trees, known to be genuine, and the stock therefrom—I mean the shoots annually springing therefrom, are always in such home demand as to exhaust the supply, and they cannot be successfully propagated otherwise. So it has followed that the sales made to distant customers have quite generally been from the scions of seedling stock—of course very greatly inferior. Late years, Mr. Barber, the Lancaster nurseryman, has been trying to correct the damage, by supplying only from the true Miners. But he says it's no go. Some sixteen years ago, my partner, Mr. Goldsmith, then of the Lancaster nursery, planted many bushels of Miner seeds to make sale trees. He did it innocently, but before he found out his error, had sold for two or three years, and salted the country with bogus trees. Of course he quit selling and destroyed his stock when he discovered his error. It was a great misfortune. Three years ago, a nurseryman at Marengo, contracted with Barber for 400 genuine Miners. He came for them, but on his way found a lot of seedling sprouts, the owner calling them Miners, and he carried away 1,200 of them—taking none from Barber. I have since noticed the Marengo man is advertising 40,000 Miner Plum trees for sale—perhaps not one genuine. I will say, however, that some of the seedlings bear a tolerable fruit, but never near equal to the genuine. They are grafting, too, on wild plum stalks—of course a failure. Really, it is impossible, almost, for a stranger to procure in our county the genuine stock, especially, if he inquires in the country. A few persons only keep posted as to where and of whom the true stock may be had. I still have two original Miners, presented to me at first by old Deacon Miner, twenty-four years ago, but they rarely throw up shoots—so are unproductive for stock.

There, now, friend Willey, I have written you a tiresome letter, being my practical experience. My letter is not at all private, yet it is not in order for print, in fact is for your own use especially, and next for any sincere inquirer. This I know, that my peculiar experience and results of my analyzing of trees, in cutting and dissecting hundreds, is worth far more than any other sort of experience. Few other persons have had old nurseries to cut and slather and analyze. Once I paid a man $1.00 for a beautiful looking tree; then with axe split down—all to satisfy two or three friends and the man himself, that his tree was so disordered in the fork as to be worthless. I found already the smoky track and mass of matter accumlating

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on the south side. It was an astonisher. We have no books on the peculiar tree ailments of the northwest. Eastern people and authors are ignorant of it all, and many of our own men, nurserymen, etc., are exceedingly bigoted in their notions, and reluctant to yield their old theories. Like the orthodox clergymen and regular doctors, it is to them a crime for any one to offer something new. Besides, the leading orchard men and nurserymen are generally old men—of course they are slow to learn—really cannot learn at the expense of their old theories. Men like yourself learn, are progressive—have few old theories of their own to be sacrificed, are accessible to practical facts and principles, have faith, believe upon reasonable testimony, etc. I rarely take much pains presenting progressive facts and scientific results to men past middle age, especially upon subjects in which they have old theories to offer. I do not think there's an average man of 45, (of course thoroughly educated men excepted) who, believing at that age in a particular moon theory, or theory as to the origin of volcanoes, storm and rain theories, or theories in religion, politics and family government, etc., can have his mind radically changed by any reasoning conclusive in science, or even mathematical demonstration. They are, at such age and after, deferential or submissive in things of small interest to them—in interested topics, bigoted to an unknown extreme. Therefore, I have rarely met an old man upon whom my demonstrated facts about trees left more than a temporary impression—if, indeed, he did not offer his theories to combat my demonstrations.

Educated men are almost invariably progressive, tolerably free from bigotry, and accessible when clearly proven facts are offered. But we have few educated, practical horticulturists. At Dubuque there are several. I once reported to them; they resolved at their agricultural club to give a year of trial to my several experiments and demonstrations. At their succeeding annual meeting they "resolved, that Mr. COVER's experiments and discoveries in clearing away the defective trees of an old nursery, as reported by himself, and considerably investigated by the members of this society, deserve more than ordinary attention, and that we feel sure, indeed, his method of orchard care is practical and may be adopted with great profit." I will observe, however, that Judge WILSON, their president, had been over to see my trees and examine into my practical management. He brought me over a fine lot of Early Richmonds, now bearing finely, and I have found his recommendations of the cherry not above desert. He is a gentleman who analyzes too finely, but is deficient as a generalizer; therefore, exceedingly critical.

But I close—wind up. Hope to make quite a protracted visit to my home this coming summer. May visit Madison. Shall be glad to meet you some time. Am afraid my very long letter may bore you. "Good intentions" are offered as my apology;

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believing that if I can add new facts to your extensive knowledge, the people are pretty sure to be reached with the same. For you are not an idler, nor a mere theorist—I think, free from bigotry.

NOTE.—I barely mentioned the Lombard plum. I have but two or three, except small. They are steady bearers; fruit magnificent. Must be grafted upon fast growing stock, as Miner's or seedling of the Miner. Perfectly hardy; fruit dark blue or brown; hang on well. Tree ornamental, fine top. As a garden tree and fruit, very choice. I do not know of any Lombards in the country except mine. C.

REPORTS OF LOCAL SOCIETIES.

RICHLAND COUNTY HORTICULTURAL SOCIETY.

SECRETARY'S REPORT.

Membership.—The number of members for 1872 was twenty-eight—an increase of eight over 1871. The annual fee is 50 cents; in return for which each member receives a volume of the transactions of the Wisconsin Horticultural Society and other documents, thus giving ample pay for the investment.

Correspondence, &c.—We have received communications from the Department of Agriculture; Secretary Wisconsin Horticultural Society; National Agricultural Congress; Galveston Mechanical, Agricultural and Horticultural Association of Texas; from the eminent Hortiulturist, CHAS. DOWNING of New York, and some others We have received seeds, etc., from the Department of Agriculture for experiment. These were received sometime in March, at a time when it was not easy to distribute to members of the society. If we had a spring meeting, seeds, etc., could be better distributed for the purpose of experiment. Proper reports have been made to the Wisconsin Horticultural Society, which entitles our society to fifty volumes of transactions, which have been received and mostly distributed.

Meetings.—Two meetings of the society were held during the year. The first was held in January, when officers were elected and other business transacted; the last, at the time of holding the county fair. Partial reports of discussions, etc., have been published.

Financial.—The receipts during the year were $14.00 from membership fees. There is now in the treasury $8.05. We would recommend that the balance in the treasury be used to

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increase the premiums in the horticultural department of the list of premiums offered by the agricultural society for the next fair.

The Fair—As heretofore, the show of fruit at the last county fair was one of the attractive features of the exhibition. About a hundred varieties were shown, including apples, grapes, plums, raspberries, strawberries and other small fruits in variety—enough to show the capacity of Richland county to grow these fruits in perfection. We would urge the importance of this department of the exhibition as one appreciated by all classes, by old and young, and one that should be more fully mentioned and developed as a feature of these annual exhibitions.

The planting of fruit trees is now more general than it has been for years past.

Among sorts disseminated during the last year, Transcendent, Sylvan Sweet, Hislop Crabs, the Duchess of Oldenburg, Tetofsky, Walbridge, Willow Twig, and Johnathan apples are prominent. Also the Minor or Hinckley plum.

Prospective.—The more general effort to grow fruits within our county enhances the value of horticultural information, and should render our efforts as a society of more importance. To the year 1873, we look forward with hope for the usefulness of the Richland County Horticultural Society.

The officers for 1873 are:

President—A. S. Webb, Woodstock.
Vice Prest.—Alonzo G. James, Richland Center.
Treasurer—Jno. Winn, Richland Center.
Secretary—A. L. Hatch, Ithaca.

Respectfully,
A. L. HATCH.

SAINT CROIX HORTICULTURAL SOCIETY.

The annual meeting of the St. Croix Valley Horticultural Society was held at River Falls, January 4, 1873, for the election of officers and the transaction of other business.

The president, S. M. Davis, gave the annual address. Members present were full of hope, judging by the large display of fruit last fall.

The following list of apples was recommended for general cultivation in the St. Croix valley: Summer, Early Joe, Sops of Wine and Rambo; fall, Saxton, Autumn Strawberry and St. Lawrence; winter, Plumb's Cider, Walbridge, Pewaukee, Tallman Sweet, Golden Russet and Fameuse.

The officers elected for the ensuing year were:

President—Osborn Strahl.
Vice President—S. Hunt.
Recording Secretary—O. C. Hicks.

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Corresponding Secretary—S. M. DAVIS.
Treasurer—M. D. PROCTOR.
Executive Committee—S. M. DAVIS, W. BARKER and JOHN GREEN.

We had an exhibition or fair last fall which proved very successful; we paid out about fifty dollars in cash premiums, besides paying all our other incidental expenses, and still have a snug little sum in the hands of the treasurer. We have about fifty paying members.

O. C. HICKS,
Recording Secretary.

OSHKOSH HORTICULTURAL SOCIETY.

Annual meeting January 9th, 1873. Officers elected were:
President—J. H. OSBORN, Oshkosh.
Vice President—E. CHASE.
Secretary—JOHN P. ROE.
Treasurer—J. KEZERTEE.
Librarian—JOHN NELSON.
Executive Committee—JOS. BRAINARD, W. CHRISTENSON and J. KEZERTEE.

Our society is now resurrected and organized, with, we hope, a brighter future before it.

J. P. ROE,
Secretary.

SHEBOYGAN COUNTY HORTICULTURAL SOCIETY.

The following officers were elected for the ensuing year at late annual election:
President—Rev. J. N. POWELL, Plymouth.
Treasurer—ASA CARPENTER.
Recording Secretary—J. W. TAYLOR, Plymouth.
Corresponding Sercetary—J. E. THOMAS, Sheboygan Falls.

WINNEBAGO COUNTY HORTICULTURAL SOCIETY.

President—J. H. JENKINS.
Recording Secretary—E. S. HAYDEN.
Corresponding Secretary—R. J. HARNEY.
Treasurer—R. I. TORREY.

It is the purpose of the society to hold its meetings for discussions at the houses of farmers, or in school houses in different parts of the county.

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SUMMARY OF METEOROLOGICAL OBSERVATIONS FOR 1872, TAKEN AT THE UNIVERSITY OF WISCONSIN.

Months.	Thermometer in open air.				Barometer height reduced to 32 degrees.				Rain and snow.		Inches of evaporation from an open vessel.	Amount of cloudiness
	Max.	Min.	Mean.	Variation	Max.	Min.	Mean.	Fluctuation.	Amount of rain or melted snow in inches.	Inches of snow.		
January	40	—15	17.5	55	29.398	28.424	28.916	.974	1.20	12	.....	4.8
February	48	—10	19.2	58	29.356	28.195	28.899	1.161	.40	3	.....	4.1
March	40	3	23.8	37	29.474	28.431	28.758	1.041	2.18	22	.....	4.8
April	77	23	45.8	54	29.345	28.242	28.870	1.102	1.82	8	4.58	4.5
May	79	39	57.5	40	29.225	28.412	28.855	.813	2.83	.....	.....	5.3
June	90	55	67.0	35	29.248	28.409	28.858	.839	2.44	.....	4.50	4.4
July	92	60	73.4	32	29.075	28.622	28.892	.453	1.26	.....	4.99	4.2
August	90	53	70.4	37	29.124	28.691	28.949	.433	2.24	.....	2.86	4.2
September	89	39	62.1	50	29.240	28.469	28.854	.771	5.11	.....	2.60	4.3
October	76	30	49.0	46	29.344	28.511	28.971	.833	.60	.....	.....	2.6
November	54	— 5	27.2	59	29.307	28.465	28.900	.842	.76	2	.....	4.7
December	38	—28	9.5	66	29.542	28.306	29.043	1.263	1.60	16	.....	5.3
Total	.....	.....	.....	.....	.....	.....	.....	.....	22.44	63	.....	.....
Mean	.....	.....	40.5	.....	.....	.....	28.897	.....	.....	.....	.....	.....

Maximum temperature 92°. Minimum temperature —28°. Range of temperatue 120°. Latitude 43° 5′. Longitude 12° 24′.

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Summary of Meteorological Observations, 1872—continued.

Months.	Force of Pressure of Vapor in Inches.			Per Centage of Saturation.			Percentage of Winds.							
	Max.	Min.	Mean.	Max.	Min.	Mean.	S.	S. W.	W.	N. W.	N.	N. E.	E.	S. E.
January	.168	.023	.096	100	44	90	15	31	25	15	9	1	0	4
February	.186	.028	.101	100	40	88	23	9	27	17	5	11	0	8
March	.170	.019	.105	100	37	82	21	3	4	22	24	13	5	8
April	.476	.061	.183	100	19	56	13	23	18	2	16	7	9	12
May	.543	.091	.245	94	23	61	5	19	19	24	3	10	9	11
June	.772	.210	.469	100	25	64	29	24	21	11	1	1	4	9
July	.813	.287	.537	94	33	65	13	28	13	20	13	1	6	6
August	.758	.285	.524	94	26	67	23	23	7	16	19	7	2	3
September	.785	.162	.411	94	29	71	14	25	15	23	2	2	3	16
October	.509	.105	.224	94	24	61	10	21	3	42	8	3	3	10
November	.275	.035	.134	100	28	85	12	19	24	32	0	0	4	8
December	.185	.013	.078	100	53	96	11	18	14	27	3	1	1	5

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